

Study Report

Restoration of an Unnamed Tributary to Broad Branch

Washington, DC

Prepared For

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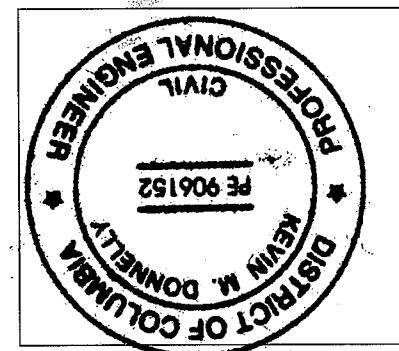
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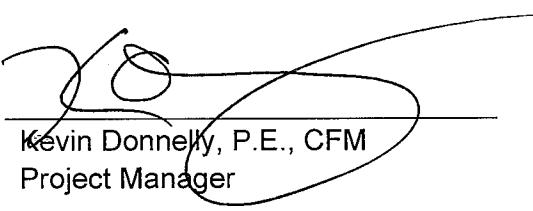
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I. Introduction

This report has been prepared as the design summary for the Restoration of an Unnamed Tributary to Broad Branch. Stantec, formerly Greenhorne & O'Mara, Inc., was contracted by the District to design restoration plans for the project area. The aim of this project is to restore the Unnamed Tributary to Broad Branch in the project area as a natural stream channel with stable morphology and a functional in-stream habitat. The proposed restoration work will improve the water quality of the Broad Branch subwatershed, moderate the “flashy” stream flow that is disruptive to habitat, stabilize channel conditions, enhance stormwater recharge in the watershed, restore a currently piped stream to a natural channel, and preserve and enhance the existing wooded stream valley corridor.

The objective of this report is to summarize the technical analysis of peak flow rates and hydraulic conditions affecting the project site under existing and proposed drainage conditions. This analysis includes an evaluation of both onsite and offsite drainage patterns and flow rates for use as the basis of design for permanent regenerative stream features and stormwater management facilities and for the determination of impacts to adjacent properties. This report was prepared in accordance with the criteria set forth by the District of Columbia Department of Health Storm Water Management Guidebook (SWMG) and the Federal Highway Administration Hydraulic Design of Highway Culverts Publication (FHAHD).

The approximately 10-acre project site is located in the District of Columbia (refer to Figure 1: Vicinity/Location Map). The overall project area extends along the Unnamed Broad Branch Tributary stream corridor near 36th Street downstream to where the stream channel is intercepted under Broad Branch Road. The project site is bordered by Rock Creek Park to the east, Military Road to the north, Nebraska Avenue to the west, and Connecticut Avenue to the west and south. The project area is within the Middle Potomac-Catoctin watershed (HUC 02070008).



Stantec



Figure 1-Area/Vicinity Map

II. Project Description

The Broad Branch watershed is a highly urbanized sub-watershed of Rock Creek located in Washington DC. Urbanization has affected the overall health of its streams and led to erosion and degradation of many of its tributaries. This project involves the restoration of approximately 1,600 linear feet of stream, which drains an approximately 170-acre sub-watershed and is currently piped beneath property owned by the National Parks Service and the District of Columbia. The stream restoration work will involve the use of stormwater infiltration BMPs, and streambed protection to simulate a natural watercourse while slowing stormwater flows, allowing for more groundwater recharge and restoring the natural stream. The daylighting of the stream and the realignment of the existing streambed will be included in the restoration

work. Groundwater recharge features, such as bioretention cells and regenerative step pools, are also included in the design.

The design involves the establishment of a low energy meandering stream system characterized by natural channel and floodplain geometry that utilizes the existing stream valley and historic stream channel to the maximum extent practicable. Structural features include low gradient riffles and deep pools with low velocity flow in the surface water, as well as an active but low velocity subsurface flow through the substrate between the bed features. Seepage wetlands and lateral wetland project structural components are incorporated into the design to compliment the flow and habitat features of the project area and to re-establish baseflow.

III. Floodplain Information

Figure 2 and Figure 3 are reproduction of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for the District of Columbia, Washington, D.C., Panel Numbers 1100010004C and 1100010008C, with an effective date of September 27, 2010. As illustrated on Figure 2 and 3, the project site lies within a FEMA designated Zone X (Unshaded). Zone X Unshaded is defined as an area determined to be outside the 0.2% annual chance floodplain. These figures are included in Appendix 1 of this report.

IV. Hydrologic Procedures Used

As recommended by the SWMG, TR-55 and TR-20 were used to estimate peak discharges for the 1-year, 2-year, 5-year, 10-year, 25-year, 50-year and 100-year 24 hour storms. Watersheds were delineated for existing and proposed conditions using survey data and 2 foot GIS contour data provided by DC, supplemented by field observations. Figures 4 and 5 show the existing and proposed watershed subbasins modeled in TR-20. These figures are included in Appendix 2 of this report. It should be noted the drainage patterns for the existing and proposed are significantly different from one another because this is a stream daylighting project and drainage patterns are being modified.

To determine the Tc, travel times were calculated for overland flow, sheet flow, open channel flow and pipe flow to points of interest within the project site.

The runoff coefficients were calculated based on land use, impervious percentages and soil types. DC GIS shapefiles were used to determine these parameters. The project site appears to be underlain by mostly fill (see Figure 6: Soils Map). A soil type is not indicated for the areas underlain by fill. A Hydrologic Soil Group “C” was used for the entire project site in order to come up with an average soil type and to account for the large percentage of fill. An appropriate runoff coefficient number (RCN) for each type of land use in the delineated basins was chosen and a composite runoff coefficient determined for each basin based on the amount of impervious cover. Calculations are included in the appendix of this report.

The current rainfall depths for District of Columbia provided in the SWMG were used for the TR-55 and TR-20 analyses.

V. Preliminary Design Discharge (Bankfull) Estimates

Four methods were used to develop design bankfull discharge estimates for the Unnamed Tributary to Broad Branch Project. These included 1) two sets of regional regression equations developed in the Maryland Piedmont region, 2) TR-20 Hydrologic Model, and 3) Manning's equation and field data.

Regional Regressions

Rosgen (1989) recommends that regional regression equations be developed by conducting field calibration surveys at USGS stream gage stations in the same hydro physiographic region as the project. This information is utilized to develop regional curves relating drainage area to discharge and drainage area to bankfull channel dimensions for use in morphologic stream assessments and as one method for developing design discharge estimates.

Because the percent impervious in the Unnamed Tributary to Broad Branch watershed is around 10%, the data was compared to predicted values for bankfull discharge using regional regression equations developed for urban watersheds (Powell, Pentz and Gemmill, 1999) and updated by Powell (2002).

In addition, the regional regressions developed by MDSHA and MDE (2005), were utilized to develop estimates for the 1.25- and 2-year recurrence interval peak discharges.

TR-20 Hydrologic Model

The watershed was analyzed for existing conditions hydrology using Technical Release 55 (TR-55), Urban Hydrology for Small Watersheds computer model. The Soil Conservation Service methodology establishes a runoff curve number (RCN) for a given land use category and hydraulic conductivity of the regional soils. TR-55 is also used to estimate a time of concentration (tc). The resulting RCN and tc developed using the TR-55 computer model were incorporated into Technical Release No. 20: Computer Program for Project Formulation Hydrology (TR-20) based upon Soil Conservation Service Methodology. TR-20 was also used to model the effects of culverts and storage at key areas in the watershed.

A range of flows varying in frequency from the 1-year to the 100-year discharge was developed using the TR-20 Hydrologic Model. The 1 and 2-year recurrence interval peak discharges were utilized to validate the discharge estimates developed using the other two methods.

Manning's Equation

Bankfull discharge estimates were developed using Manning's equation and cross-sectional data collected along the project reaches. The slope used was the water surface slope of the overall reach, and estimates of Manning's n were developed utilizing visual observations of the channel bottom and banks throughout the reach. The bankfull discharge estimates are summarized in the table below.

As shown in Table 1, the bankfull discharge estimates developed for the Unnamed Tributary to Broad Branch using the Manning's equation and field data fall within the range of discharges bound by the 1 and 2-Year recurrence interval flood flows developed with the TR-20 model. The table also shows that the discharge estimates developed using both regional regression methods compare favorably to each other.

However, the regional regression discharge estimates do not correlate well with discharge estimates from the other methods. This lack of comparison is understandable given the small size of the project drainage areas, which fall well below the acceptable range for which the regional regressions are valid. Also, the watershed is greatly impacted by storage upstream of culverts and only the TR-20 models takes this into account. For this reason, it was determined that the 1-YR discharges from the TR-20 model provided a good estimate of bankfull discharge for the design of the main stem channel.

After deciding the TR-20 1-YR storm event would be the design storm, the TR-20 preliminary discharge estimate was revised as the design was fully developed. Section VI below describes the final existing and proposed hydrologic analysis of the watershed. The channel was then designed to carry this flow in a non-erosive manner. Storm flows greater than bankfull (i.e., out-of-bank flows) will be conveyed along the adjacent floodplain.

Because of the steep slopes they drain, the tributaries on the Peruvian Embassy Residence Property were designed to carry all flows up to and including the 100-year discharge in the restored channel.

The results of the HEC-RAS Hydraulic model will be used to evaluate the hydraulic characteristics of all three channels to verify they will remain stable under the range of flows anticipated.

Table 1 – Comparison of Preliminary Discharge Estimates (cfs)

| DA (acres) | TR-20 1-YR | Manning's Equation | TR-20 2-YR | Urban Regression Bankfull | MDSHA Regression 1.25-YR | MDSHA Regression 2-YR |
|-----------------------|-----------------------|-------------------------------|-----------------------|--|---|--------------------------------------|
| 17.9 | 31.6 | 36 – 39.7 | 43.3 | 11.5 | 9.3 | 18.0 |
| 19.6 | 32.9 | 33.9 | 45.5 | 12.3 | 9.4 | 18.3 |
| 26.9 | 40.7 | 40.0 | 57.9 | 15.8 | 9.0 | 15.8 |
| 28.6 | 42.0 | 38.2 | 59.8 | 16.6 | 9.3 | 16.3 |

VI. Hydrology

A. Existing Conditions

In the existing condition, the entire site is largely residential with areas of open space and roadways. Basin 1 runoff on the west side of 36th Street is intercepted by a culvert installed at the 36th Street Bridge and conveyed into an 11' x 7' RCB structure contained within the Broad Branch ROW. Discharge from Basins 3A, 3A1, 3A2, 3B, 3B1 and 3B2 are intercepted by inlets in Linnaean Ave and are conveyed to the RCB structure via culverts flowing to the northeast.

Some discharge from Basin 4 is captured at Linnaean Ave and conveyed via an existing 42" storm drain to the existing 11' x 7' RCB structure. The 42" storm drain is undersized and clogged, as site visits and hydraulic calculations revealed that storm flows overtop Linnaean Avenue instead of entering the pipe during larger storm events. Runoff from Basins 5A, 5B, 5C, 5D, 5E, 5F1, 5F2, 5F3 and 5G are conveyed via overland flow and channel flow to an existing culvert under Broad Branch Road and is ultimately discharged to the existing 11' x 7' RCB. The combined site discharge to the existing 11' x 7' RCB has been included in the model as OUTLET.

A summary of basin areas and peak flows for the 1-year, 2-year, 5-year, 10-year, 25-year, 50-year and 100-year existing conditions are included below in Table 2. The TR-55 data, TR-20 analysis and other information used to develop the peak flows for the existing condition are included with this report.

Table 2: Existing Conditions Hydrology Summary

| Location | Description | Rev. Q1 (cfs) | Rev. Q2 (cfs) | Rev. Q5 (cfs) | Rev. Q10 (cfs) | Rev. Q25 (cfs) | Rev. Q50 (cfs) | Rev. Q100 (cfs) |
|---------------------|---|------------------------------|------------------------------|------------------------------|-------------------------------|-------------------------------|-------------------------------|--------------------------------|
| CP1 | Upstream of Linnaean Ave. in abandoned stream channel | 4.5 | 6.3 | 9 | 11.1 | 14 | 16 | 18.2 |
| CP2 | Downstream of Linnaean Ave. | 1.2 | 1.8 | 2.6 | 3.2 | 4 | 4.6 | 5.3 |
| CP3 | Just downstream of confluence of main stream and tributary from Harrison St. intersection | 7.3 | 21.2 | 43.5 | 77.1 | 119.2 | 149.1 | 180.8 |
| CP4 | Main stem upstream of confluence with Tributary A | 8.4 | 22.9 | 46 | 80.4 | 123.6 | 154.3 | 186.9 |
| Basin 4 | Just upstream of Linnaean Ave. culvert near Harrison St. | 79.1 | 107.6 | 146.9 | 177 | 217.9 | 246.9 | 277.2 |
| Downstream Reach 4A | Flow in culvert under Linnaean Ave. near Harrison St. | 72.9 | 88.1 | 105.9 | 106.5 | 107.4 | 107.8 | 108.2 |
| Downstream Reach 4 | Flow overtopping Linnaean Ave. near Harrison St. | 5.2 | 18.3 | 39.5 | 69 | 108.8 | 137.1 | 166.8 |
| CP5 | At Peruvian fence line along Tributary A | 4.1 | 6.1 | 10.4 | 13 | 16.6 | 19.2 | 22 |
| CP6 | At Peruvian fence line along Tributary B | 3.7 | 5.3 | 7.6 | 9.5 | 12.1 | 13.9 | 15.9 |
| CP7 | At confluence of Tributary B and main stem | 15.9 | 35 | 65.7 | 104.8 | 154.8 | 190.4 | 228 |
| CP8 | Just upstream of Broad Branch Road | 16.9 | 36.6 | 68 | 107.3 | 158.7 | 195.2 | 233.7 |
| Downstream CP8 | Flow in culvert under Broad Branch Road | 16.4 | 34.4 | 52.1 | 82.5 | 156 | 194.1 | 232.5 |
| Overtops Road | | | | | | | | |



B. Proposed Conditions

Under proposed drainage conditions, site improvements have been constructed and are in place. The fill in the area between 36th Street and Linnaean Ave has been removed and regenerative step pools and other ponds have been constructed.

Runoff from Basin 1 is intercepted before it reaches the 11' x 7' RCB the RCB structure at a manhole located in Basin 2 and enters the newly constructed ponds. Runoff from within Basin 3B in the unnamed alley abutting Linnaean Ave has been separated out to create two new sub-basins, Basin 3B1 and Basin 3B2. Runoff to these two sub-basins will be collected by stormwater recharge facilities one and two before combining with discharge from Basin 1 and Basin 2 at CP2 (upstream the new culvert under Linnaean Ave). This flow combines with runoff from Basins 3A1 (Linnaean Ave street flows) and Basin 5A at CP4.

A diversion is planned to reroute baseflow from Basin 4 to CP5 where it will combine with upstream flows from CP4 and Basin 5B. Runoff from Basin 4 exceeding the baseflow (approximately 2-year storm flow), will continue to be conveyed to the existing RCB structure via the existing storm drain system. Runoff from CP5 will continue downstream to CP6 where it will combine will flows from Basin 5F1.

Runoff from Basins 5C and 5C1 combine at CP12 before it is conveyed to CP6. Runoff from Basins 5E and 5F2 combine at CP14 before it is conveyed to CP7. Runoff from CP7 is conveyed downstream to CP8 where it combines with discharge from Basin 5G.

Runoff from Basins 3B and 3A2 combine and are conveyed to Outlet 1, combine with runoff from Basin 3A continue to the existing RCB and ultimately to the OUTLET.

A summary of basin areas and peak flows for the 1-year, 2-year, 5-year, 10-year, 25-year, 50-year and 100-year proposed condition is included below in Table 3. The TR-55 data, TR-20 analysis and other information used to develop the peak flows for the proposed conditions are included with this report.



Table 3: Proposed Conditions Hydrology Summary

| Plan Station | Stream | TR 20 Point | Description | Drainage Area (sq. mi.) | Q1 (cfs) | Q2 (cfs) | Q5 (cfs) | Q10 (cfs) | Q25 (cfs) | Q50 (cfs) | Q100 (cfs) |
|----------------|-------------|----------------------|--|-------------------------|----------|----------|----------|-----------|-----------|-----------|------------|
| | Main Stem | CP1 | Upstream of 36th St. | 0.012 | 14.2 | 19.7 | 27.2 | 33.2 | 41.2 | 46.8 | 52.9 |
| 0+00 to 2+52 | Main Stem | Reach 1 - Downstream | From just downstream of 36th St. culvert to just upstream of SRF #1 outfall | 0.016 | 14.6 | 20.6 | 30.1 | 38.2 | 47.8 | 53.9 | 59.2 |
| 2+52 to 3+50 | Main Stem | Reach 1b | From just downstream of SRF #1 outfall to just upstream of Linnaean Ave. | 0.022 | 18.8 | 26.6 | 39.2 | 50.4 | 63.3 | 71.6 | 78.9 |
| 3+50 to 6+46 | Main Stem | CP2 Downstream | Flow through Linnaean Ave. culvert | 0.024 | 19.1 | 27.3 | 39.4 | 47.8 | 55.0 | 60.5 | 64.3 |
| | Main Stem | CP4 | From downstream of Linnaean Ave. culvert to just upstream of Tributary D | 0.025 | 14.9 | 22.8 | 35.4 | 44.8 | 53.1 | 58.8 | 63.8 |
| 6+46 to 12+02 | Main Stem | CP5 | From just downstream of Tributary D to just upstream of Tributary A | 0.089 | 14.9 | 23.2 | 42.3 | 85.3 | 135.8 | 169.9 | 205.2 |
| 12+02 to 13+05 | Main Stem | CP6 | From just downstream of Tributary A to just upstream of Tributary B | 0.097 | 14.9 | 25.1 | 53.8 | 101.3 | 157.3 | 195.3 | 234.1 |
| 13+05 to 14+00 | Main Stem | CP7 | From just downstream of Tributary B to 200' upstream of Broad Branch Rd. culvert | 0.103 | 15.8 | 25.5 | 60.4 | 111.5 | 171.4 | 212.0 | 253.8 |
| 14+00 to 15+26 | Main Stem | CP8 | From 200' upstream of Broad Branch Rd. culvert to the Broad Branch Rd. culvert | 0.105 | 17.6 | 27.6 | 63.0 | 115.1 | 176.6 | 195.3 | 234.4 |
| | Main Stem | Downstream CP8 | Flow through the culvert under Broad Branch Road | 0.105 | 17.2 | 27.3 | 57.4 | 84.5 | 171.0 | 217.1 | 260.0 |
| | Tributary C | CP11 | From the upstream limit of work to downstream end of regenerative step-pools | 0.003 | 2.8 | 4.0 | 5.8 | 7.2 | 9.1 | 10.5 | 12.0 |
| | Tributary A | CP12 | From upstream limit of work to confluence with main stem | 0.006 | 5.3 | 7.8 | 11.1 | 13.9 | 17.6 | 20.3 | 23.2 |

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| Plan Station | Stream | TR 20 Point | Description | Drainage Area (sq. mi.) | Q1 (cfs) | Q2 (cfs) | Q5 (cfs) | Q10 (cfs) | Q25 (cfs) | Q50 (cfs) | Q100 (cfs) |
|----------------------|---------------|--------------------|---|--------------------------------|-----------------|-----------------|-----------------|------------------|------------------|------------------|-------------------|
| | Tributary B | CP14 | From upstream limit of work to confluence with main stem | 0.004 | 3.8 | 5.5 | 7.8 | 9.7 | 12.3 | 14.2 | 16.2 |
| | Tributary D | CP9 | From the upstream limit of work to the Linnaean Ave. culvert | 0.065 | 79.1 | 107.6 | 146.9 | 177.0 | 217.9 | 246.9 | 277.2 |
| | Tributary D | CP9 Downstream | Flow to the culvert just upstream of Linnaean Ave. culvert near Harrison St. after accounting for storage | 0.065 | 77.1 | 102.9 | 138.5 | 173.3 | 215.1 | 243.3 | 273.8 |
| | Tributary D | Reach 8.1 | Flow in culvert under Linnaean Ave. (non-contributing to stream flow) | 0.004* | 77.1 | 102.9 | 123.2 | 123.2 | 123.2 | 123.2 | 123.2 |
| | Tributary D | Reach 8 | Flow overtopping Linnaean Ave. (contributes to stream flow) | 0.061* | 0.0 | 0.0 | 15.3 | 50.0 | 91.8 | 120.1 | 150.6 |
| Overtops Road | | | | | | | | | | | |



VII. Hydraulics

The proposed stormwater management system is comprised of a series of stormwater wetlands, stormwater recharge facilities and regenerative step pools.

The Federal Highway Administration (FHWA) software program, HY-8 version 6.2 was used to analyze hydraulic performance of the 42-inch culvert under Linnaean Ave. along the main stem and the 36-inch culvert under Broad Branch Avenue located at the downstream end of the project area. Stage-discharge information from the HY-8 analysis was then input into the TR-20 model to account for the effect of storage upstream of Linnaean Ave. and Broad Branch Road on the main stem. The results of this analysis were included in the TR-20 model.

Similarly, a stage-discharge rating curve for the riser drop structure along Tributary D was developed using a spreadsheet and the weir and orifice equations. The analysis of Tributary D included computation of both flow through the culvert under Linnaean Ave. and flow overtop of Linnaean Ave., which then flows downhill to meet that main stem. This spreadsheet is included in the Appendix and was used as input into the TR-20 model.

Storm drain inlet computations are also included in the Appendix. Rational Method was used for inlet sizing and Hydraulic Grade Line computations. See Appendix 4 for these documents.

The US Army Corps of Engineers computer program, HEC-RAS version 4.0.0, was used to run a steady flow analysis of the main stem with the proposed improvements. Multi-profile analysis was run to determine expected water surface elevations along the length of the main stem. This analysis was also used to improve on the design by modifying locations shown within the model with high shear and velocity conditions. Output is included in Appendix 4 of this report.

Equation 2.1 from the SWMG was used to size the proposed storm water recharge facilities. Refer to Tables 4 and 5 below for SRF sizing data and facility summary.

Table 4: Stormwater Recharge Facility Sizing

| Stormwater Recharge Facility | Total Contributing Area (ft ²) | % Impervious | Runoff Depth (R) | Impervious Area (I _a) | V _w Required (ft ³) | V _w Provided (ft ³) |
|------------------------------|--|--------------|------------------|-----------------------------------|--|--|
| #1 | 164,516 | 22% | 0.30 | 36,194 | 1,190 | 1,219 |
| #2 | 51,747 | 21% | 0.30 | 10,867 | 314 | 314 |
| #3 | 67,974 | 50% | 0.30 | 33,987 | 932 | 414 |
| | | | | | | 2,436 |
| | | | | | | 1,947 |

Table 5: Stormwater Facility Summary

| Facility | Facility Code | BMP List | Public/Private | Storage Volume (ft ³) |
|----------|---------------|--------------|----------------|-----------------------------------|
| SRF1 | F-7 | Bioretention | Public | 1,219 |
| SRF2 | F-7 | Bioretention | Public | 314 |
| SRF3 | F-7 | Bioretention | Public | 414 |

VIII. Special Tree Impacts

The overall environmental impact of this project is overwhelmingly positive; however as part of the grading and construction to restore the natural channel flow, many trees will be impacted and removed. The District Department of the Environment is committed to protecting the trees within the District and is therefore replacing the sum total circumference of all trees being removed which are over 17.5" in diameter. Stantec's arborist inspected and documented all trees over 17.5" in diameter that are expected to be removed, impacted or are close to the construction area. A total of 12 trees, totaling 320" in diameter are being removed. These equates to a removal of 1,005" in circumference being removed. Particular attention was paid to the impacts on the land owned by the National Park Service (NPS). On NPS lands, five trees with a total of 119" in diameter or 374" in circumference are being removed.

In order to mitigate for the removal of special trees, DDOE is planting 265 new trees (225 one inch diameter trees and 48 two inch diameter trees). The total provided mitigation circumference is 1,008 inches.



IX. Conclusion and Recommendations

This report presents the findings of a detailed evaluation of the existing and proposed drainage conditions at the project site. This study analyzed offsite and onsite flow patterns and demonstrates that the site will be able to convey the required peak flow rate under the conditions set forth by the SWMG. Historical flowpaths have been maintained and proposed discharges do not exceed pre-development discharges. Construction of the proposed stormwater management facilities and associated site improvements will not have an adverse impact on downstream properties.

X. References

1. USDA, WinTR-55: Small Watershed Hydrology, Version 1.00.08 (2004)
2. USDA, WinTR-20 System Controller/Editor, Version 1.11.11 (2009)
3. DC Government, Storm Water Management Guidebook, April 2003
4. USACE, HEC-RAS River Analysis System Hydraulic Reference Manual, Version 4.0 (2008)
5. FHWA, HY-8 Culvert Hydraulic Analysis Program, Version 7.2 (2010)

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 - o Riser Structure
 - o HEC-RAS
 - o Strom Drain Computations
 - o Inlet Computations
 - o Intercepted Flow Computations
5. Water Quality Calculations

X. References

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2. USDA, WinTR-20 System Controller/Editor, Version 1.11.11 (2009)
3. DC Government, Storm Water Management Guidebook, April 2003
4. USACE, HEC-RAS River Analysis System Hydraulic Reference Manual, Version 4.0 (2008)
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 - o Strom Drain Computations
 - o Inlet Capacity Computations
5. Water Quality Calculations



Appendix 1 - Figures

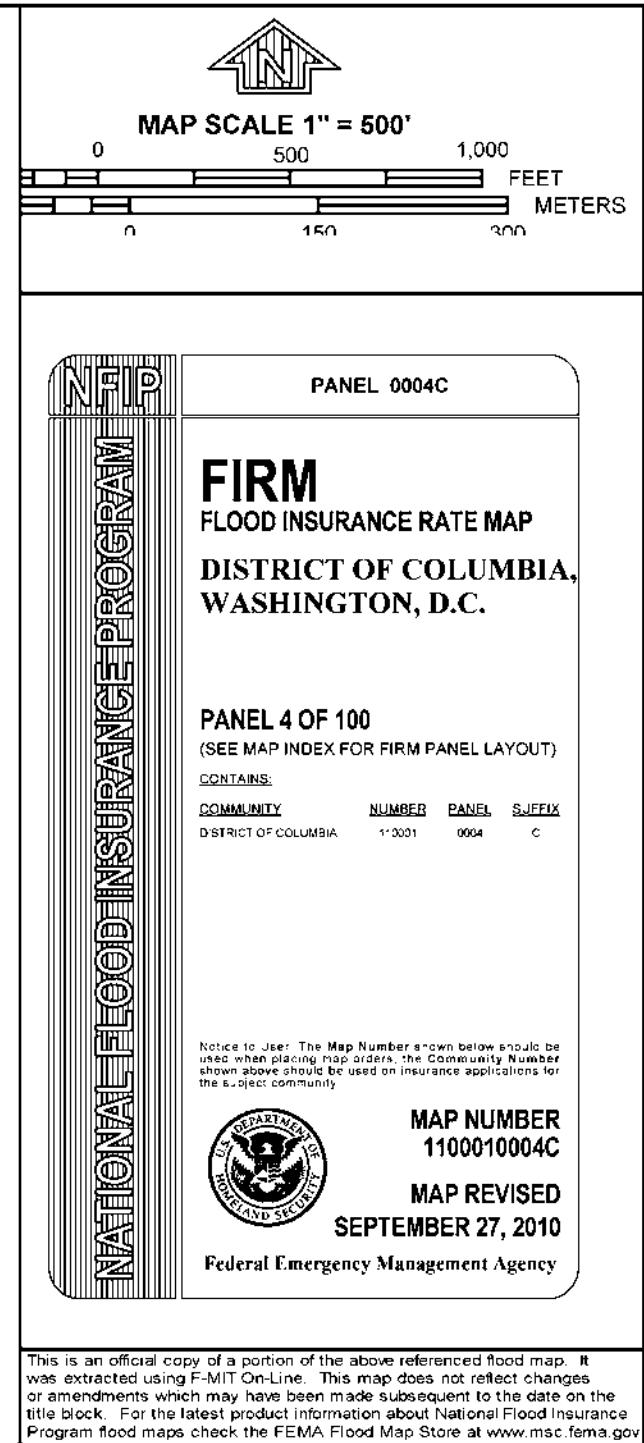
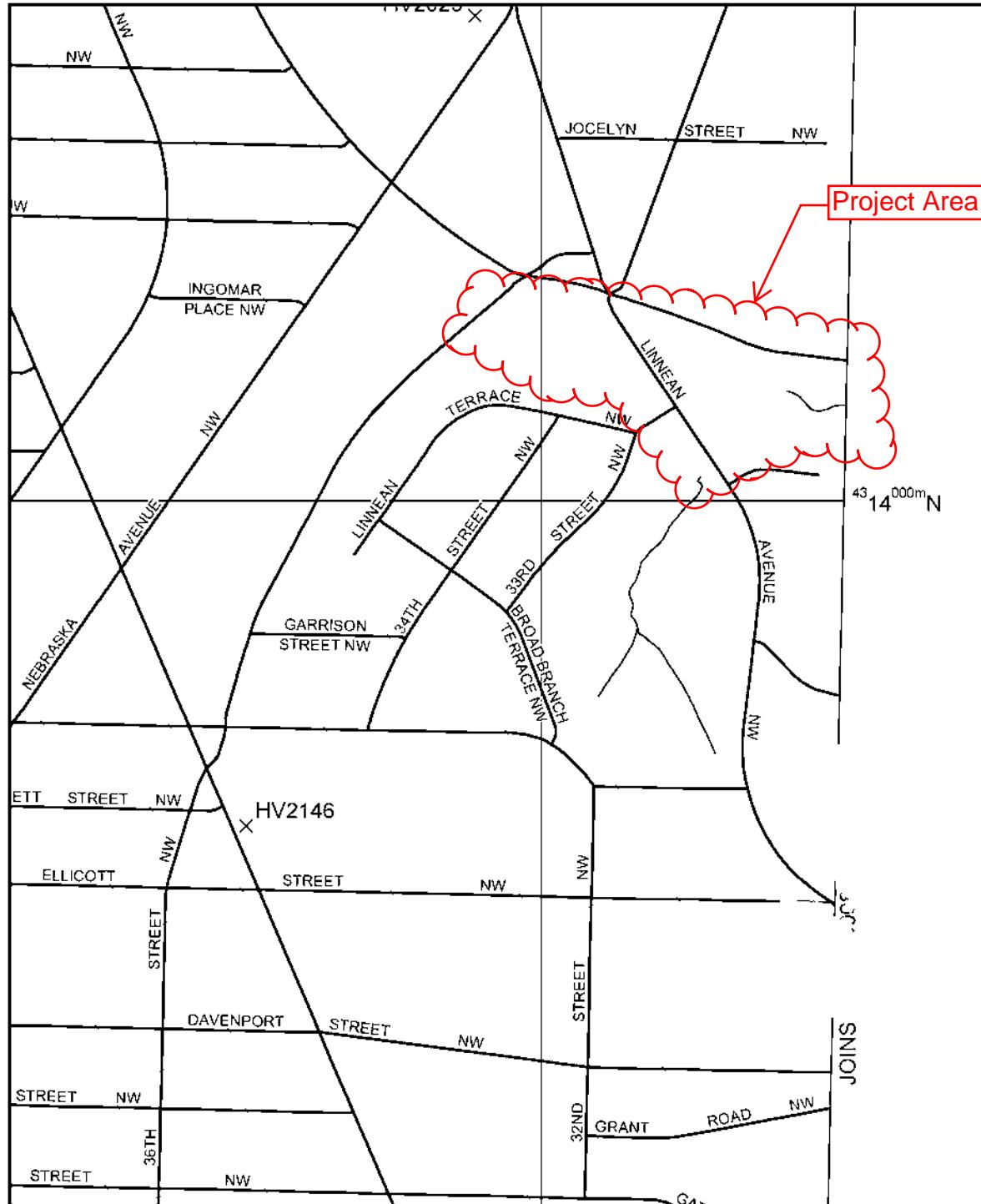


Figure 2 - FEMA Map 1100010004C

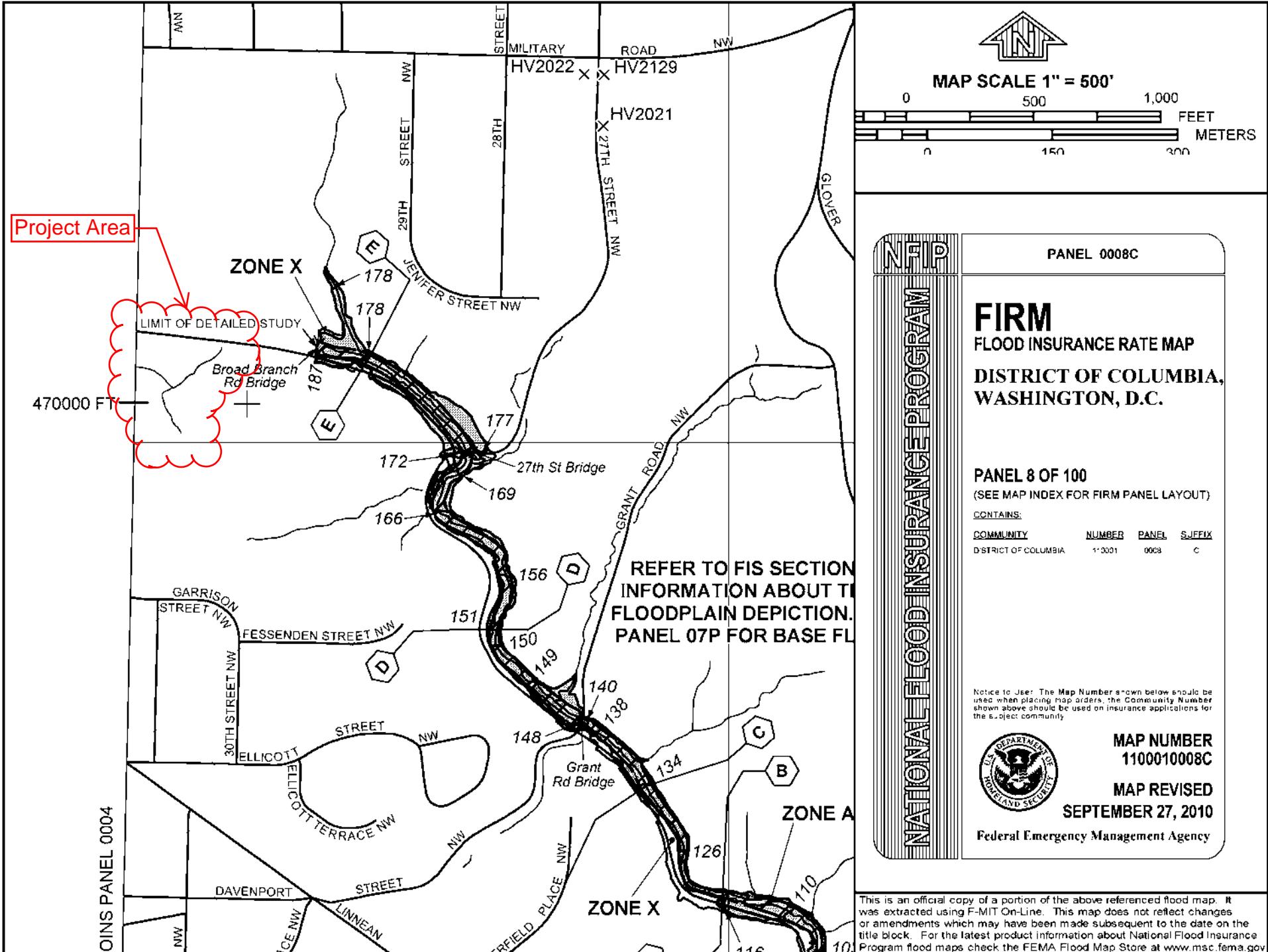


Figure 3 - FEMA Map 1100010008C

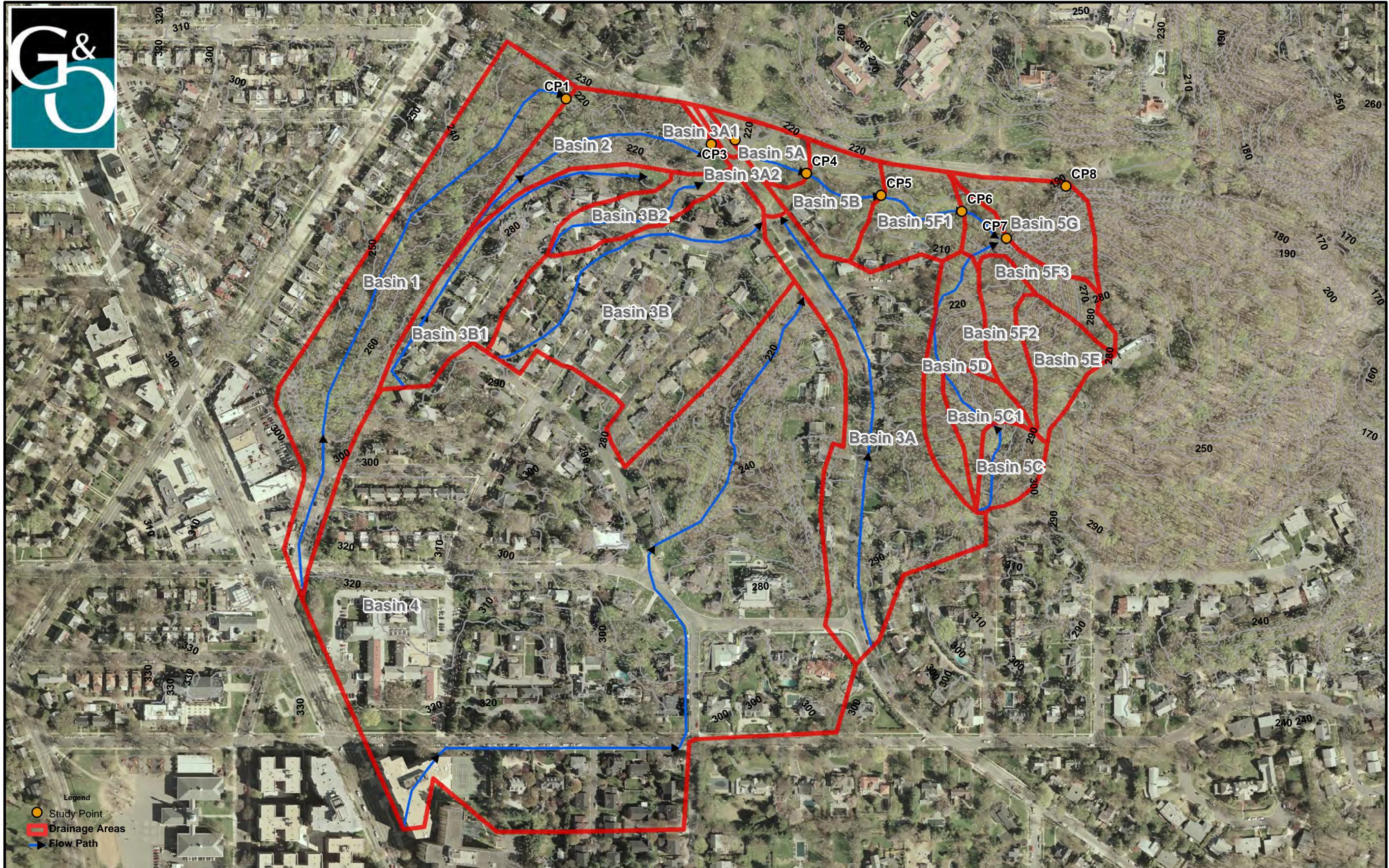
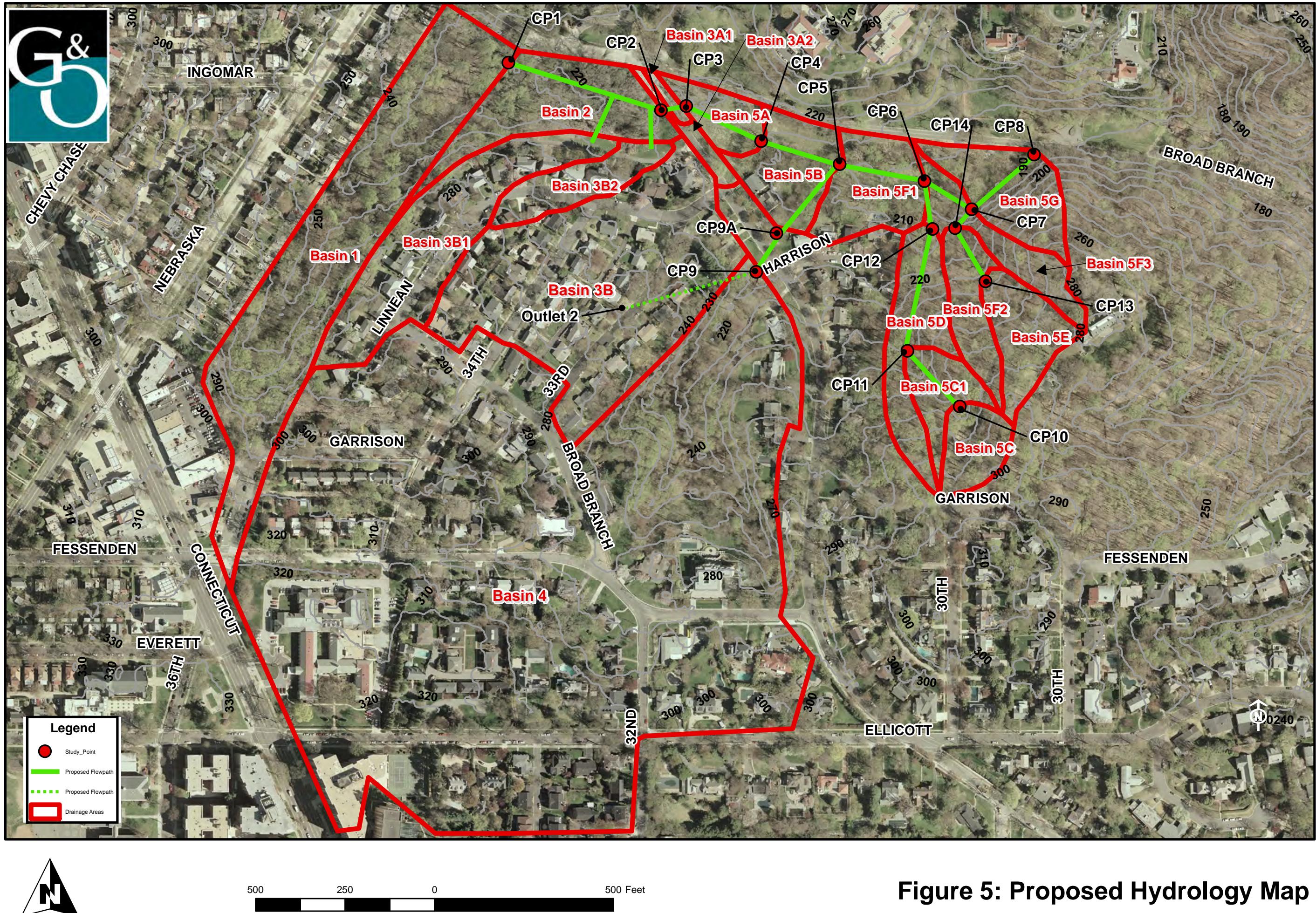


Figure 4: Existing Hydrology Map



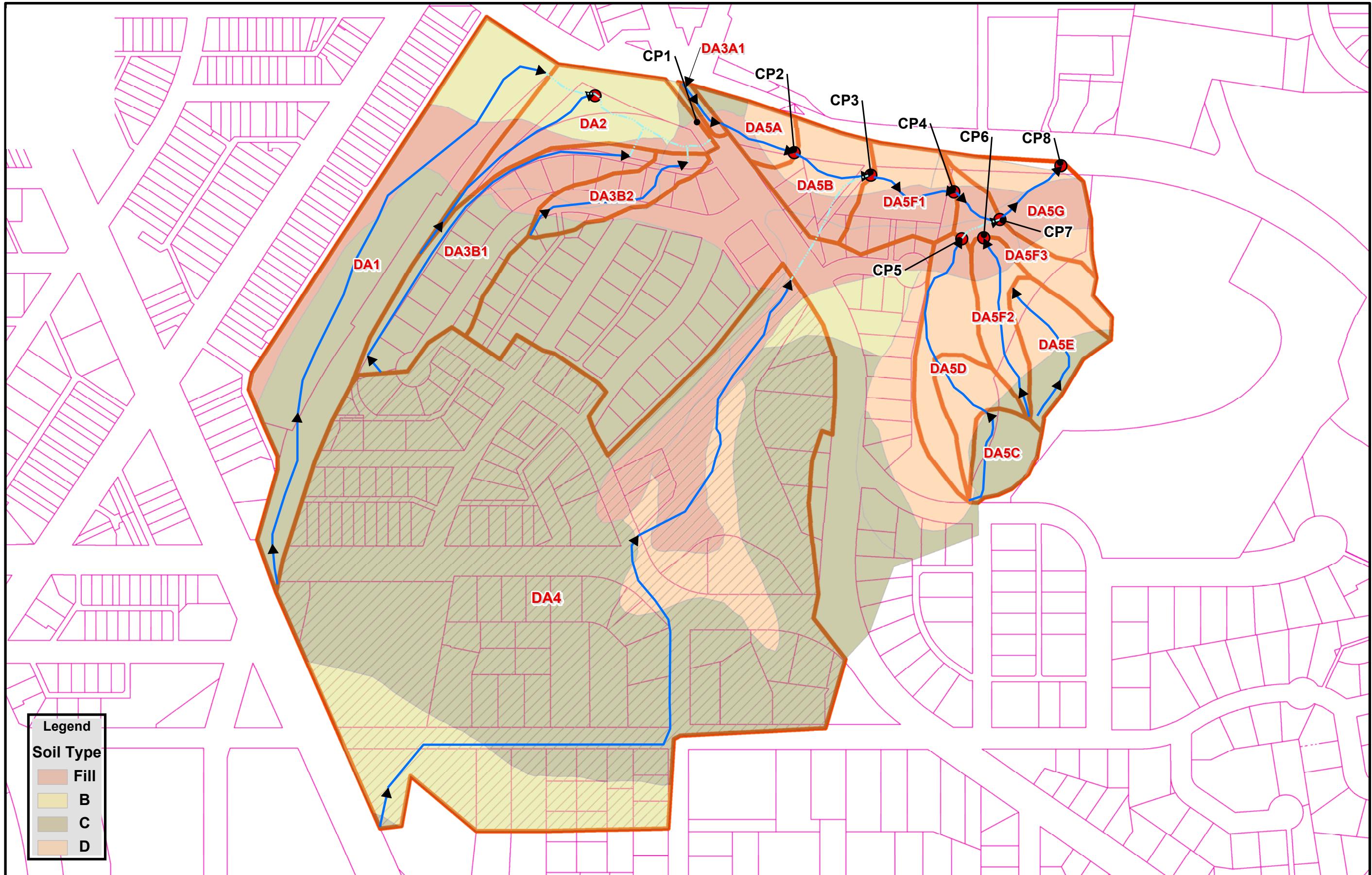


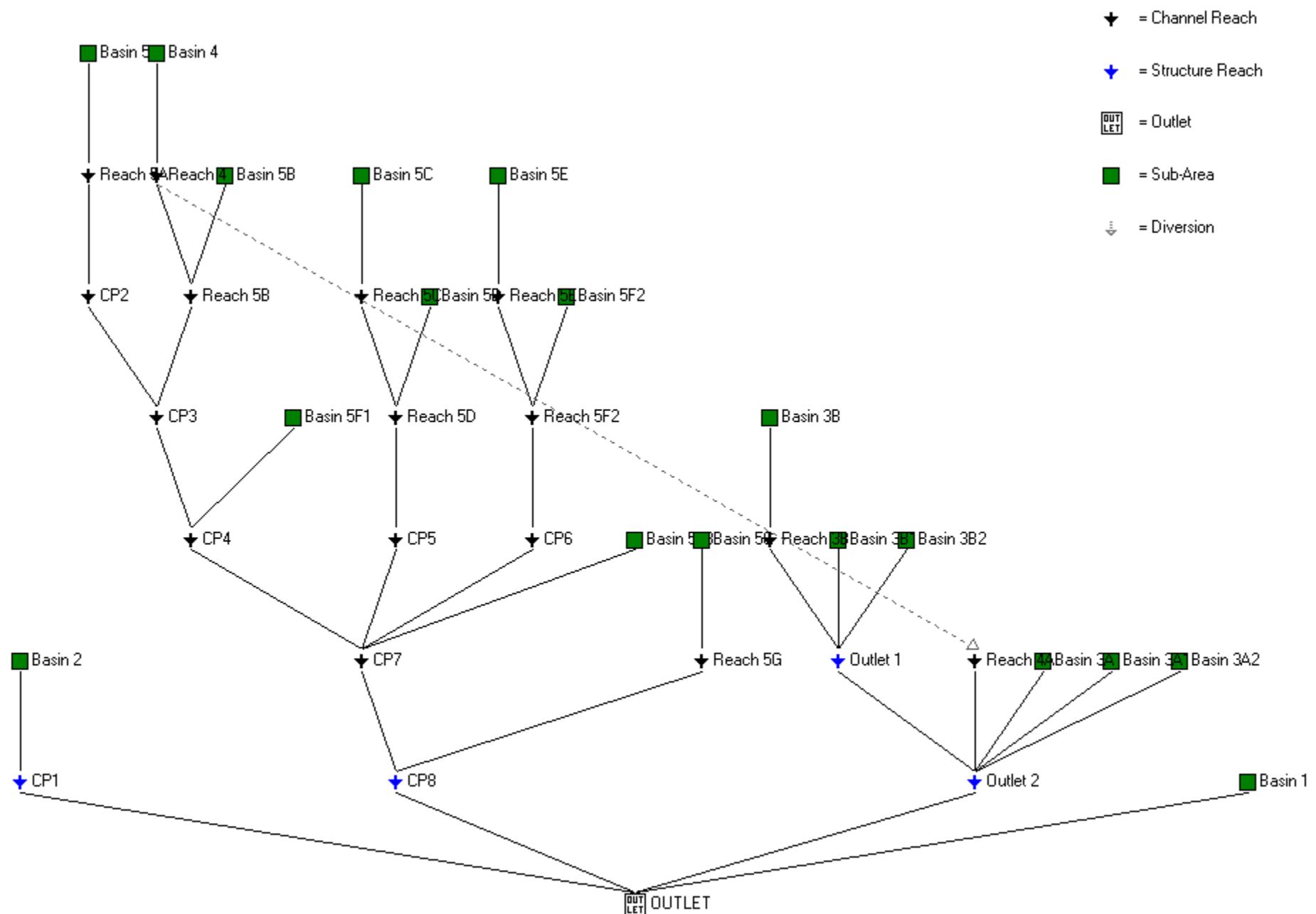
Figure 6: Soils Map



500
250
0
500 Feet



Appendix 2 - Existing Conditions Hydrology Calculations – TR-20



WinTR-20 Printed Page File Beginning of Input Data List
 C:\Program Files\USDA\WinTR-20 version 1.11.11\0577-Existing.inp

WinTR-20: Version 1.11 0 0 1. 0
 Unnamed Tributary to Broad Branch

SUB-AREA:

| | | | | | |
|-----------|-----------|----------|-----|-----|---|
| Basin 1 | OUTLET | 0.012 | 82. | .1 | |
| Basin 2 | CP1 | 0.00425 | 80. | 0.1 | |
| Basin 3A | Outlet 2 | 0.01308 | 87. | .1 | |
| Basin 3B | Reach 3B | 0.013223 | 85. | .1 | |
| Basin 4 | Reach 4 | 0.064838 | 84. | .13 | Y |
| Basin 5A | Reach 5A | .001258 | 79. | 0.1 | |
| Basin 5B | Reach 5B | 0.002431 | 79. | 0.1 | |
| Basin 5C | Reach 5C | 0.001425 | 79. | 0.1 | |
| Basin 5D | Reach 5D | 0.004246 | 79. | 0.1 | |
| Basin 5E | Reach 5E | 0.002114 | 79. | 0.1 | |
| Basin 5G | Reach 5G | 0.002667 | 79. | 0.1 | |
| Basin 3A1 | Outlet 2 | 0.00020 | 98. | .1 | |
| Basin 3A2 | Outlet 2 | .0002 | 98. | .1 | |
| Basin 3B1 | Outlet 1 | .005901 | 85. | .1 | |
| Basin 3B2 | Outlet 1 | .001861 | 85. | .1 | |
| Basin 5F1 | CP4 | .002613 | 79. | 0.1 | |
| Basin 5F2 | Reach 5F2 | .001752 | 79. | .1 | |
| Basin 5F3 | CP7 | .001881 | 79. | .1 | |

STREAM REACH:

| | | | | | |
|-----------|-----------|------------|--------------|------------|----------|
| Reach 4 | Reach 5B | Linnean_Rd | 150. | 150. | Y |
| | | SPLIT FLOW | Reach 4A | Linnean_Cu | 0.064838 |
| Reach 3B | Outlet 1 | 900 | 50. | 50. | |
| CP1 | OUTLET | | Box | 240. | 240. |
| CP2 | CP3 | 900 | | 235. | 235. |
| CP3 | CP4 | 900 | | 265. | 265. |
| CP4 | CP7 | 900 | | 159. | 159. |
| CP7 | CP8 | 900 | | 234. | 234. |
| CP5 | CP7 | 900 | | 80. | 80. |
| CP8 | OUTLET | | Broad_Bran5. | 5. | |
| CP6 | CP7 | 900 | | 80. | 80. |
| Reach 5A | CP2 | 900 | | 200. | 200. |
| Reach 5B | CP3 | 900 | | 200. | 200. |
| Reach 5C | Reach 5D | 900 | | 600. | 600. |
| Reach 5D | CP5 | 900 | | 600. | 600. |
| Reach 5E | Reach 5F2 | 900 | | 200. | 200. |
| Reach 5F2 | CP6 | 900 | | 450. | 450. |
| Reach 5G | CP8 | 900 | | 150. | 150. |
| Outlet 1 | Outlet 2 | | Box | 100. | |
| Outlet 2 | OUTLET | | Box | 200. | |
| Reach 4A | Outlet 2 | Linnean_Cu | | 10. | YY Y |

STORM ANALYSIS:

| | | | | |
|-----------|------|-----------|---|------|
| 1_yr_sm | 2.60 | 1_yr_sm | 2 | 3.14 |
| 2_yr_sm | 3.14 | 2_yr_sm | 2 | |
| 5_yr_sm | 4.04 | 5_yr_sm | 2 | |
| 10_yr_sm | 4.83 | 10_yr_sm | 2 | |
| 25_yr_sm | 6.04 | 25_yr_sm | 2 | |
| 50_yr_sm | 7.12 | 50_yr_sm | 2 | |
| 100_yr_sm | 8.33 | 100_yr_sm | 2 | |

STREAM CROSS SECTION:

| | | | | |
|--------|--------|-------|-------|---------|
| 900 | 211.04 | | | |
| 210.01 | 0. | 0. | 0. | .021620 |
| 210.61 | 25.4 | 14.87 | 55.35 | .02163 |

| | | | | |
|-------------------|---------------|---------------|--------|---------|
| 210.68 | 35. | 19.11 | 57.33 | .02155 |
| 210.73 | 41.2 | 21.64 | 58.47 | .0215 |
| 211.04 | 100. | 44.13 | 85.32 | .021168 |
| 211.9 | 400. | 140.71 | 132.91 | .01997 |
| Linnean_Rd | 215.85 | 215.43 | | |
| 215.43 | 0. | 0. | 0. | .005 |
| 215.73 | 7.97 | 4.53 | 17.04 | |
| 216.43 | 40.27 | 17.51 | 32.76 | |
| 216.93 | 108.52 | 37.09 | 45.05 | |
| 217.43 | 214.59 | 62.58 | 57.66 | |
| 217.93 | 361.18 | 95.17 | 73.28 | |
| 218.43 | 597.75 | 133.68 | 79.39 | |
| Linnean_Cu | 215.61 | 212.49 | | |
| 212.49 | 0. | 0. | 0. | 0.17 |
| 212.51 | 0.002 | 0.01 | 0.53 | |
| 212.64 | 0.143 | 0.14 | 1.46 | |
| 212.99 | 1.823 | .84 | 2.71 | |
| 213.49 | 7.388 | 2.27 | 3.95 | |
| 213.99 | 15.84 | 3.94 | 5. | |
| 214.49 | 25.829 | 5.68 | 6. | |
| 214.99 | 35.64 | 7.35 | 7.05 | |
| 215.49 | 68.8 | 8.78 | 8.28 | |
| 215.81 | 78.4 | 9. | 8.5 | |
| 215.91 | 86.4 | 9.2 | 8.7 | |
| 216.05 | 91.8 | 9.4 | 8.9 | |
| 216.12 | 96. | 9.6 | 9.1 | |
| 216.22 | 100.1 | 9.8 | 9.3 | |
| 216.28 | 102.8 | 10. | 9.5 | |
| 216.35 | 105.7 | 10.2 | 9.7 | |
| 217.49 | 109. | 10.4 | 9.9 | |

STRUCTURE RATING:

| | | | | |
|-------------------|---------------|---------|----------|--|
| Box | 209.74 | | | |
| | 209.74 | 0. | 0. | |
| | 210. | 17.94 | .0000078 | |
| | 212. | 531.88 | .0005863 | |
| | 214. | 1300.76 | .0020831 | |
| | 216. | 2168.64 | .0044981 | |
| | 217. | 2623.15 | .00605 | |
| POND | 212. | | | |
| | 212. | 0. | 0. | |
| | 212.75 | 37.934 | .05 | |
| | 213.5 | 47.983 | .12 | |
| | 215. | 63.476 | .33 | |
| | 219.5 | 95.966 | 1.44 | |
| | 227. | 133.579 | 4.95 | |
| Linnean | 212. | | | |
| | 212. | 0. | 0. | |
| | 214. | 17. | .0039 | |
| | 215. | 36.5 | .0398 | |
| | 215.61 | 49.88 | .0658 | |
| Broad_Bran | 184.5 | | | |
| | 184.5 | 0. | 0. | |
| | 185. | 0.1 | 0.00001 | |
| | 186. | 6. | .0072 | |
| | 187. | 20. | .0244 | |
| | 188. | 35. | .0564 | |
| | 189. | 45. | .1319 | |
| | 190. | 56. | .2456 | |
| | 191. | 67.18 | .4007 | |
| | 191.5 | 140. | .4978 | |
| | 192. | 323. | .6057 | |
| | 192.5 | 500. | .7153 | |

RAINFALL DISTRIBUTION:

| 1_yr_sm | 0.1 | | | | |
|---------|----------|----------|----------|----------|--|
| 0.0 | 0.000377 | 0.000775 | 0.0012 | 0.0016 | |
| 0.0021 | 0.0026 | 0.0031 | 0.0036 | 0.0042 | |
| 0.0047 | 0.0053 | 0.0060 | 0.0066 | 0.0073 | |
| 0.0079 | 0.0086 | 0.0094 | 0.0101 | 0.0109 | |
| 0.0117 | 0.0125 | 0.0133 | 0.0142 | 0.0150 | |
| 0.0159 | 0.0169 | 0.0178 | 0.0188 | 0.0198 | |
| 0.0208 | 0.0218 | 0.0228 | 0.0239 | 0.0250 | |
| 0.0261 | 0.0273 | 0.0284 | 0.0296 | 0.0308 | |
| 0.0320 | 0.0333 | 0.0345 | 0.0358 | 0.0371 | |
| 0.0385 | 0.0398 | 0.0412 | 0.0426 | 0.0440 | |
| 0.0455 | 0.0469 | 0.0484 | 0.0499 | 0.0515 | |
| 0.0530 | 0.0546 | 0.0562 | 0.0578 | 0.0594 | |
| 0.0611 | 0.0628 | 0.0645 | 0.0662 | 0.0680 | |
| 0.0697 | 0.0715 | 0.0733 | 0.0752 | 0.0770 | |
| 0.0789 | 0.0808 | 0.0827 | 0.0847 | 0.0866 | |
| 0.0886 | 0.0906 | 0.0927 | 0.0947 | 0.0968 | |
| 0.0989 | 0.1010 | 0.1031 | 0.1053 | 0.1075 | |
| 0.1097 | 0.1119 | 0.1142 | 0.1164 | 0.1187 | |
| 0.1210 | 0.1245 | 0.1281 | 0.1317 | 0.1353 | |
| 0.1390 | 0.1428 | 0.1465 | 0.1504 | 0.1543 | |
| 0.1582 | 0.1622 | 0.1662 | 0.1703 | 0.1744 | |
| 0.1785 | 0.1859 | 0.1933 | 0.2006 | 0.2080 | |
| 0.2153 | 0.2261 | 0.2369 | 0.2477 | 0.2585 | |
| 0.2692 | 0.2902 | 0.3112 | 0.3401 | 0.3839 | |
| 0.4663 | 0.6161 | 0.6599 | 0.6888 | 0.7098 | |
| 0.7308 | 0.7415 | 0.7523 | 0.7631 | 0.7739 | |
| 0.7847 | 0.7920 | 0.7994 | 0.8067 | 0.8141 | |
| 0.8215 | 0.8256 | 0.8297 | 0.8338 | 0.8378 | |
| 0.8418 | 0.8457 | 0.8496 | 0.8535 | 0.8572 | |
| 0.8610 | 0.8647 | 0.8683 | 0.8719 | 0.8755 | |
| 0.8790 | 0.8813 | 0.8836 | 0.8858 | 0.8881 | |
| 0.8903 | 0.8925 | 0.8947 | 0.8969 | 0.8990 | |
| 0.9011 | 0.9032 | 0.9053 | 0.9073 | 0.9094 | |
| 0.9114 | 0.9134 | 0.9153 | 0.9173 | 0.9192 | |
| 0.9211 | 0.9230 | 0.9248 | 0.9267 | 0.9285 | |
| 0.9303 | 0.9320 | 0.9338 | 0.9355 | 0.9372 | |
| 0.9389 | 0.9406 | 0.9422 | 0.9438 | 0.9454 | |
| 0.9470 | 0.9485 | 0.9501 | 0.9516 | 0.9531 | |
| 0.9545 | 0.9560 | 0.9574 | 0.9588 | 0.9602 | |
| 0.9615 | 0.9629 | 0.9642 | 0.9655 | 0.9667 | |
| 0.9680 | 0.9692 | 0.9704 | 0.9716 | 0.9727 | |
| 0.9739 | 0.9750 | 0.9761 | 0.9772 | 0.9782 | |
| 0.9792 | 0.9802 | 0.9812 | 0.9822 | 0.9831 | |
| 0.9841 | 0.9850 | 0.9858 | 0.9867 | 0.9875 | |
| 0.9883 | 0.9891 | 0.9899 | 0.9906 | 0.9914 | |
| 0.9921 | 0.9927 | 0.9934 | 0.9940 | 0.9947 | |
| 0.9953 | 0.9958 | 0.9964 | 0.9969 | 0.9974 | |
| 0.9979 | 0.9984 | 0.9988 | 0.999225 | 0.999623 | |
| 1.0 | 0.1 | | | | |
| 2_yr_sm | 0.1 | | | | |
| 0.0 | 0.000339 | 0.000700 | 0.0011 | 0.0015 | |
| 0.0019 | 0.0024 | 0.0028 | 0.0033 | 0.0038 | |
| 0.0044 | 0.0049 | 0.0055 | 0.0061 | 0.0067 | |
| 0.0073 | 0.0080 | 0.0087 | 0.0094 | 0.0101 | |
| 0.0109 | 0.0116 | 0.0124 | 0.0132 | 0.0141 | |
| 0.0149 | 0.0158 | 0.0167 | 0.0176 | 0.0186 | |
| 0.0195 | 0.0205 | 0.0215 | 0.0226 | 0.0236 | |
| 0.0247 | 0.0258 | 0.0269 | 0.0280 | 0.0292 | |

| | | | | |
|---------|----------|----------|----------|----------|
| 0.0304 | 0.0316 | 0.0328 | 0.0340 | 0.0353 |
| 0.0366 | 0.0379 | 0.0392 | 0.0406 | 0.0419 |
| 0.0433 | 0.0447 | 0.0462 | 0.0476 | 0.0491 |
| 0.0506 | 0.0521 | 0.0537 | 0.0553 | 0.0568 |
| 0.0584 | 0.0601 | 0.0617 | 0.0634 | 0.0651 |
| 0.0668 | 0.0686 | 0.0703 | 0.0721 | 0.0739 |
| 0.0757 | 0.0776 | 0.0794 | 0.0813 | 0.0832 |
| 0.0852 | 0.0871 | 0.0891 | 0.0911 | 0.0931 |
| 0.0952 | 0.0972 | 0.0993 | 0.1014 | 0.1035 |
| 0.1057 | 0.1078 | 0.1100 | 0.1122 | 0.1145 |
| 0.1167 | 0.1202 | 0.1237 | 0.1273 | 0.1309 |
| 0.1345 | 0.1383 | 0.1420 | 0.1458 | 0.1497 |
| 0.1535 | 0.1575 | 0.1615 | 0.1655 | 0.1696 |
| 0.1737 | 0.1812 | 0.1886 | 0.1960 | 0.2035 |
| 0.2109 | 0.2219 | 0.2329 | 0.2439 | 0.2549 |
| 0.2659 | 0.2877 | 0.3094 | 0.3392 | 0.3839 |
| 0.4670 | 0.6161 | 0.6608 | 0.6906 | 0.7123 |
| 0.7341 | 0.7451 | 0.7561 | 0.7671 | 0.7781 |
| 0.7891 | 0.7965 | 0.8040 | 0.8114 | 0.8188 |
| 0.8263 | 0.8304 | 0.8345 | 0.8385 | 0.8425 |
| 0.8465 | 0.8503 | 0.8542 | 0.8580 | 0.8617 |
| 0.8655 | 0.8691 | 0.8727 | 0.8763 | 0.8798 |
| 0.8833 | 0.8855 | 0.8878 | 0.8900 | 0.8922 |
| 0.8943 | 0.8965 | 0.8986 | 0.9007 | 0.9028 |
| 0.9048 | 0.9069 | 0.9089 | 0.9109 | 0.9129 |
| 0.9148 | 0.9168 | 0.9187 | 0.9206 | 0.9224 |
| 0.9243 | 0.9261 | 0.9279 | 0.9297 | 0.9314 |
| 0.9332 | 0.9349 | 0.9366 | 0.9383 | 0.9399 |
| 0.9416 | 0.9432 | 0.9447 | 0.9463 | 0.9479 |
| 0.9494 | 0.9509 | 0.9524 | 0.9538 | 0.9553 |
| 0.9567 | 0.9581 | 0.9594 | 0.9608 | 0.9621 |
| 0.9634 | 0.9647 | 0.9660 | 0.9672 | 0.9684 |
| 0.9696 | 0.9708 | 0.9720 | 0.9731 | 0.9742 |
| 0.9753 | 0.9764 | 0.9774 | 0.9785 | 0.9795 |
| 0.9805 | 0.9814 | 0.9824 | 0.9833 | 0.9842 |
| 0.9851 | 0.9859 | 0.9868 | 0.9876 | 0.9884 |
| 0.9891 | 0.9899 | 0.9906 | 0.9913 | 0.9920 |
| 0.9927 | 0.9933 | 0.9939 | 0.9945 | 0.9951 |
| 0.9956 | 0.9962 | 0.9967 | 0.9972 | 0.9976 |
| 0.9981 | 0.9985 | 0.9989 | 0.999300 | 0.999661 |
| 1.0 | | | | |
| 5_yr_sm | 0.1 | | | |
| 0.0 | 0.000336 | 0.000693 | 0.0011 | 0.0015 |
| 0.0019 | 0.0023 | 0.0028 | 0.0033 | 0.0038 |
| 0.0043 | 0.0049 | 0.0055 | 0.0061 | 0.0067 |
| 0.0073 | 0.0080 | 0.0087 | 0.0094 | 0.0101 |
| 0.0109 | 0.0117 | 0.0124 | 0.0133 | 0.0141 |
| 0.0150 | 0.0158 | 0.0168 | 0.0177 | 0.0186 |
| 0.0196 | 0.0206 | 0.0216 | 0.0226 | 0.0237 |
| 0.0248 | 0.0259 | 0.0270 | 0.0282 | 0.0293 |
| 0.0305 | 0.0317 | 0.0330 | 0.0342 | 0.0355 |
| 0.0368 | 0.0381 | 0.0395 | 0.0408 | 0.0422 |
| 0.0436 | 0.0451 | 0.0465 | 0.0480 | 0.0495 |
| 0.0510 | 0.0525 | 0.0541 | 0.0557 | 0.0573 |
| 0.0589 | 0.0606 | 0.0622 | 0.0639 | 0.0657 |
| 0.0674 | 0.0692 | 0.0709 | 0.0727 | 0.0746 |
| 0.0764 | 0.0783 | 0.0802 | 0.0821 | 0.0840 |
| 0.0860 | 0.0880 | 0.0900 | 0.0920 | 0.0940 |
| 0.0961 | 0.0982 | 0.1003 | 0.1024 | 0.1046 |
| 0.1068 | 0.1089 | 0.1112 | 0.1134 | 0.1157 |
| 0.1180 | 0.1215 | 0.1251 | 0.1287 | 0.1324 |
| 0.1361 | 0.1399 | 0.1437 | 0.1476 | 0.1515 |
| 0.1555 | 0.1595 | 0.1636 | 0.1677 | 0.1719 |

| | | | | |
|----------|----------|----------|----------|----------|
| 0.1761 | 0.1837 | 0.1914 | 0.1990 | 0.2066 |
| 0.2143 | 0.2256 | 0.2370 | 0.2483 | 0.2597 |
| 0.2710 | 0.2936 | 0.3162 | 0.3464 | 0.3909 |
| 0.4707 | 0.6091 | 0.6536 | 0.6838 | 0.7064 |
| 0.7290 | 0.7403 | 0.7517 | 0.7630 | 0.7744 |
| 0.7857 | 0.7934 | 0.8010 | 0.8086 | 0.8163 |
| 0.8239 | 0.8281 | 0.8323 | 0.8364 | 0.8405 |
| 0.8445 | 0.8485 | 0.8524 | 0.8563 | 0.8601 |
| 0.8639 | 0.8676 | 0.8713 | 0.8749 | 0.8785 |
| 0.8820 | 0.8843 | 0.8866 | 0.8888 | 0.8911 |
| 0.8932 | 0.8954 | 0.8976 | 0.8997 | 0.9018 |
| 0.9039 | 0.9060 | 0.9080 | 0.9100 | 0.9120 |
| 0.9140 | 0.9160 | 0.9179 | 0.9198 | 0.9217 |
| 0.9236 | 0.9254 | 0.9273 | 0.9291 | 0.9308 |
| 0.9326 | 0.9343 | 0.9361 | 0.9378 | 0.9394 |
| 0.9411 | 0.9427 | 0.9443 | 0.9459 | 0.9475 |
| 0.9490 | 0.9505 | 0.9520 | 0.9535 | 0.9549 |
| 0.9564 | 0.9578 | 0.9592 | 0.9605 | 0.9619 |
| 0.9632 | 0.9645 | 0.9658 | 0.9670 | 0.9683 |
| 0.9695 | 0.9707 | 0.9718 | 0.9730 | 0.9741 |
| 0.9752 | 0.9763 | 0.9774 | 0.9784 | 0.9794 |
| 0.9804 | 0.9814 | 0.9823 | 0.9832 | 0.9842 |
| 0.9850 | 0.9859 | 0.9867 | 0.9876 | 0.9883 |
| 0.9891 | 0.9899 | 0.9906 | 0.9913 | 0.9920 |
| 0.9927 | 0.9933 | 0.9939 | 0.9945 | 0.9951 |
| 0.9957 | 0.9962 | 0.9967 | 0.9972 | 0.9977 |
| 0.9981 | 0.9985 | 0.9989 | 0.999307 | 0.999664 |
| 1.0 | | | | |
| 10_yr_sm | 0.1 | | | |
| 0.0 | 0.000365 | 0.000753 | 0.0012 | 0.0016 |
| 0.0021 | 0.0025 | 0.0030 | 0.0035 | 0.0041 |
| 0.0047 | 0.0053 | 0.0059 | 0.0065 | 0.0072 |
| 0.0078 | 0.0085 | 0.0093 | 0.0100 | 0.0108 |
| 0.0116 | 0.0124 | 0.0132 | 0.0141 | 0.0150 |
| 0.0159 | 0.0168 | 0.0177 | 0.0187 | 0.0197 |
| 0.0207 | 0.0218 | 0.0228 | 0.0239 | 0.0250 |
| 0.0261 | 0.0273 | 0.0285 | 0.0296 | 0.0309 |
| 0.0321 | 0.0334 | 0.0347 | 0.0360 | 0.0373 |
| 0.0386 | 0.0400 | 0.0414 | 0.0428 | 0.0443 |
| 0.0457 | 0.0472 | 0.0487 | 0.0503 | 0.0518 |
| 0.0534 | 0.0550 | 0.0566 | 0.0583 | 0.0599 |
| 0.0616 | 0.0633 | 0.0651 | 0.0668 | 0.0686 |
| 0.0704 | 0.0722 | 0.0741 | 0.0759 | 0.0778 |
| 0.0797 | 0.0817 | 0.0836 | 0.0856 | 0.0876 |
| 0.0896 | 0.0917 | 0.0938 | 0.0959 | 0.0980 |
| 0.1001 | 0.1023 | 0.1045 | 0.1067 | 0.1089 |
| 0.1111 | 0.1134 | 0.1157 | 0.1180 | 0.1204 |
| 0.1227 | 0.1263 | 0.1300 | 0.1337 | 0.1375 |
| 0.1413 | 0.1452 | 0.1491 | 0.1531 | 0.1571 |
| 0.1612 | 0.1653 | 0.1695 | 0.1737 | 0.1780 |
| 0.1823 | 0.1901 | 0.1979 | 0.2056 | 0.2134 |
| 0.2211 | 0.2326 | 0.2441 | 0.2555 | 0.2670 |
| 0.2785 | 0.3010 | 0.3235 | 0.3534 | 0.3969 |
| 0.4733 | 0.6031 | 0.6466 | 0.6765 | 0.6990 |
| 0.7215 | 0.7330 | 0.7445 | 0.7559 | 0.7674 |
| 0.7789 | 0.7866 | 0.7944 | 0.8021 | 0.8099 |
| 0.8177 | 0.8220 | 0.8263 | 0.8305 | 0.8347 |
| 0.8388 | 0.8429 | 0.8469 | 0.8509 | 0.8548 |
| 0.8587 | 0.8625 | 0.8663 | 0.8700 | 0.8737 |
| 0.8773 | 0.8796 | 0.8820 | 0.8843 | 0.8866 |
| 0.8889 | 0.8911 | 0.8933 | 0.8955 | 0.8977 |
| 0.8999 | 0.9020 | 0.9041 | 0.9062 | 0.9083 |
| 0.9104 | 0.9124 | 0.9144 | 0.9164 | 0.9183 |

| | | | | |
|----------|----------|----------|----------|----------|
| 0.9203 | 0.9222 | 0.9241 | 0.9259 | 0.9278 |
| 0.9296 | 0.9314 | 0.9332 | 0.9349 | 0.9367 |
| 0.9384 | 0.9401 | 0.9417 | 0.9434 | 0.9450 |
| 0.9466 | 0.9482 | 0.9497 | 0.9513 | 0.9528 |
| 0.9543 | 0.9557 | 0.9572 | 0.9586 | 0.9600 |
| 0.9614 | 0.9627 | 0.9640 | 0.9653 | 0.9666 |
| 0.9679 | 0.9691 | 0.9704 | 0.9715 | 0.9727 |
| 0.9739 | 0.9750 | 0.9761 | 0.9772 | 0.9782 |
| 0.9793 | 0.9803 | 0.9813 | 0.9823 | 0.9832 |
| 0.9841 | 0.9850 | 0.9859 | 0.9868 | 0.9876 |
| 0.9884 | 0.9892 | 0.9900 | 0.9907 | 0.9915 |
| 0.9922 | 0.9928 | 0.9935 | 0.9941 | 0.9947 |
| 0.9953 | 0.9959 | 0.9965 | 0.9970 | 0.9975 |
| 0.9979 | 0.9984 | 0.9988 | 0.999247 | 0.999635 |
| 1.0 | | | | |
| 25_yr_sm | 0.1 | | | |
| 0.0 | 0.000439 | 0.000902 | 0.0014 | 0.0019 |
| 0.0024 | 0.0030 | 0.0036 | 0.0042 | 0.0048 |
| 0.0054 | 0.0061 | 0.0068 | 0.0075 | 0.0083 |
| 0.0090 | 0.0098 | 0.0106 | 0.0114 | 0.0123 |
| 0.0132 | 0.0141 | 0.0150 | 0.0159 | 0.0169 |
| 0.0179 | 0.0189 | 0.0200 | 0.0210 | 0.0221 |
| 0.0232 | 0.0244 | 0.0255 | 0.0267 | 0.0279 |
| 0.0291 | 0.0304 | 0.0316 | 0.0329 | 0.0343 |
| 0.0356 | 0.0370 | 0.0383 | 0.0398 | 0.0412 |
| 0.0426 | 0.0441 | 0.0456 | 0.0471 | 0.0487 |
| 0.0503 | 0.0519 | 0.0535 | 0.0551 | 0.0568 |
| 0.0585 | 0.0602 | 0.0619 | 0.0637 | 0.0655 |
| 0.0673 | 0.0691 | 0.0709 | 0.0728 | 0.0747 |
| 0.0766 | 0.0786 | 0.0805 | 0.0825 | 0.0845 |
| 0.0866 | 0.0886 | 0.0907 | 0.0928 | 0.0949 |
| 0.0971 | 0.0992 | 0.1014 | 0.1037 | 0.1059 |
| 0.1082 | 0.1104 | 0.1128 | 0.1151 | 0.1174 |
| 0.1198 | 0.1222 | 0.1247 | 0.1271 | 0.1296 |
| 0.1321 | 0.1358 | 0.1397 | 0.1435 | 0.1475 |
| 0.1514 | 0.1554 | 0.1595 | 0.1636 | 0.1678 |
| 0.1720 | 0.1763 | 0.1806 | 0.1850 | 0.1894 |
| 0.1939 | 0.2018 | 0.2096 | 0.2175 | 0.2253 |
| 0.2332 | 0.2447 | 0.2562 | 0.2676 | 0.2791 |
| 0.2906 | 0.3126 | 0.3346 | 0.3634 | 0.4049 |
| 0.4762 | 0.5951 | 0.6366 | 0.6654 | 0.6874 |
| 0.7094 | 0.7209 | 0.7324 | 0.7438 | 0.7553 |
| 0.7668 | 0.7747 | 0.7825 | 0.7904 | 0.7982 |
| 0.8061 | 0.8106 | 0.8150 | 0.8194 | 0.8237 |
| 0.8280 | 0.8322 | 0.8364 | 0.8405 | 0.8446 |
| 0.8486 | 0.8525 | 0.8565 | 0.8603 | 0.8642 |
| 0.8679 | 0.8704 | 0.8729 | 0.8753 | 0.8778 |
| 0.8802 | 0.8826 | 0.8849 | 0.8872 | 0.8896 |
| 0.8918 | 0.8941 | 0.8963 | 0.8986 | 0.9008 |
| 0.9029 | 0.9051 | 0.9072 | 0.9093 | 0.9114 |
| 0.9134 | 0.9155 | 0.9175 | 0.9195 | 0.9214 |
| 0.9234 | 0.9253 | 0.9272 | 0.9291 | 0.9309 |
| 0.9327 | 0.9345 | 0.9363 | 0.9381 | 0.9398 |
| 0.9415 | 0.9432 | 0.9449 | 0.9465 | 0.9481 |
| 0.9497 | 0.9513 | 0.9529 | 0.9544 | 0.9559 |
| 0.9574 | 0.9588 | 0.9602 | 0.9617 | 0.9630 |
| 0.9644 | 0.9657 | 0.9671 | 0.9684 | 0.9696 |
| 0.9709 | 0.9721 | 0.9733 | 0.9745 | 0.9756 |
| 0.9768 | 0.9779 | 0.9790 | 0.9800 | 0.9811 |
| 0.9821 | 0.9831 | 0.9841 | 0.9850 | 0.9859 |
| 0.9868 | 0.9877 | 0.9886 | 0.9894 | 0.9902 |
| 0.9910 | 0.9917 | 0.9925 | 0.9932 | 0.9939 |
| 0.9946 | 0.9952 | 0.9958 | 0.9964 | 0.9970 |

| | | | | | |
|-----------|----------|----------|----------|----------|----------|
| | 0.9976 | 0.9981 | 0.9986 | 0.999098 | 0.999561 |
| 1.0 | | | | | |
| 50_yr_sm | 0.1 | | | | |
| 0.0 | 0.000485 | 0.000994 | 0.0015 | 0.0021 | |
| 0.0027 | 0.0033 | 0.0039 | 0.0045 | 0.0052 | |
| 0.0059 | 0.0066 | 0.0074 | 0.0082 | 0.0089 | |
| 0.0098 | 0.0106 | 0.0115 | 0.0124 | 0.0133 | |
| 0.0142 | 0.0152 | 0.0161 | 0.0172 | 0.0182 | |
| 0.0192 | 0.0203 | 0.0214 | 0.0225 | 0.0237 | |
| 0.0249 | 0.0261 | 0.0273 | 0.0285 | 0.0298 | |
| 0.0311 | 0.0324 | 0.0337 | 0.0351 | 0.0365 | |
| 0.0379 | 0.0393 | 0.0408 | 0.0422 | 0.0437 | |
| 0.0453 | 0.0468 | 0.0484 | 0.0500 | 0.0516 | |
| 0.0533 | 0.0549 | 0.0566 | 0.0583 | 0.0601 | |
| 0.0618 | 0.0636 | 0.0654 | 0.0673 | 0.0691 | |
| 0.0710 | 0.0729 | 0.0749 | 0.0768 | 0.0788 | |
| 0.0808 | 0.0828 | 0.0849 | 0.0869 | 0.0890 | |
| 0.0911 | 0.0933 | 0.0955 | 0.0976 | 0.0999 | |
| 0.1021 | 0.1044 | 0.1066 | 0.1089 | 0.1113 | |
| 0.1136 | 0.1160 | 0.1184 | 0.1208 | 0.1233 | |
| 0.1258 | 0.1283 | 0.1308 | 0.1333 | 0.1359 | |
| 0.1385 | 0.1424 | 0.1463 | 0.1503 | 0.1543 | |
| 0.1584 | 0.1625 | 0.1667 | 0.1710 | 0.1752 | |
| 0.1796 | 0.1840 | 0.1884 | 0.1929 | 0.1975 | |
| 0.2021 | 0.2101 | 0.2180 | 0.2260 | 0.2340 | |
| 0.2420 | 0.2536 | 0.2651 | 0.2767 | 0.2883 | |
| 0.2999 | 0.3217 | 0.3436 | 0.3720 | 0.4119 | |
| 0.4790 | 0.5881 | 0.6280 | 0.6564 | 0.6783 | |
| 0.7001 | 0.7117 | 0.7233 | 0.7349 | 0.7464 | |
| 0.7580 | 0.7660 | 0.7740 | 0.7820 | 0.7899 | |
| 0.7979 | 0.8025 | 0.8071 | 0.8116 | 0.8160 | |
| 0.8204 | 0.8248 | 0.8290 | 0.8333 | 0.8375 | |
| 0.8416 | 0.8457 | 0.8497 | 0.8537 | 0.8576 | |
| 0.8615 | 0.8641 | 0.8667 | 0.8692 | 0.8717 | |
| 0.8742 | 0.8767 | 0.8792 | 0.8816 | 0.8840 | |
| 0.8864 | 0.8887 | 0.8911 | 0.8934 | 0.8956 | |
| 0.8979 | 0.9001 | 0.9024 | 0.9045 | 0.9067 | |
| 0.9089 | 0.9110 | 0.9131 | 0.9151 | 0.9172 | |
| 0.9192 | 0.9212 | 0.9232 | 0.9251 | 0.9271 | |
| 0.9290 | 0.9309 | 0.9327 | 0.9346 | 0.9364 | |
| 0.9382 | 0.9399 | 0.9417 | 0.9434 | 0.9451 | |
| 0.9467 | 0.9484 | 0.9500 | 0.9516 | 0.9532 | |
| 0.9547 | 0.9563 | 0.9578 | 0.9592 | 0.9607 | |
| 0.9621 | 0.9635 | 0.9649 | 0.9663 | 0.9676 | |
| 0.9689 | 0.9702 | 0.9715 | 0.9727 | 0.9739 | |
| 0.9751 | 0.9763 | 0.9775 | 0.9786 | 0.9797 | |
| 0.9808 | 0.9818 | 0.9828 | 0.9839 | 0.9848 | |
| 0.9858 | 0.9867 | 0.9876 | 0.9885 | 0.9894 | |
| 0.9902 | 0.9911 | 0.9918 | 0.9926 | 0.9934 | |
| 0.9941 | 0.9948 | 0.9955 | 0.9961 | 0.9967 | |
| 0.9973 | 0.9979 | 0.9985 | 0.999006 | 0.999515 | |
| 1.0 | | | | | |
| 100_yr_sm | 0.1 | | | | |
| 0.0 | 0.000568 | 0.0012 | 0.0018 | 0.0024 | |
| 0.0031 | 0.0038 | 0.0045 | 0.0052 | 0.0060 | |
| 0.0068 | 0.0076 | 0.0084 | 0.0093 | 0.0101 | |
| 0.0111 | 0.0120 | 0.0129 | 0.0139 | 0.0149 | |
| 0.0159 | 0.0170 | 0.0181 | 0.0192 | 0.0203 | |
| 0.0214 | 0.0226 | 0.0238 | 0.0250 | 0.0263 | |
| 0.0275 | 0.0288 | 0.0301 | 0.0315 | 0.0329 | |
| 0.0342 | 0.0357 | 0.0371 | 0.0386 | 0.0400 | |
| 0.0415 | 0.0431 | 0.0446 | 0.0462 | 0.0478 | |
| 0.0495 | 0.0511 | 0.0528 | 0.0545 | 0.0562 | |

| | | | | |
|--------|--------|--------|--------|----------|
| 0.0580 | 0.0597 | 0.0615 | 0.0634 | 0.0652 |
| 0.0671 | 0.0690 | 0.0709 | 0.0728 | 0.0748 |
| 0.0768 | 0.0788 | 0.0809 | 0.0829 | 0.0850 |
| 0.0871 | 0.0893 | 0.0914 | 0.0936 | 0.0958 |
| 0.0981 | 0.1003 | 0.1026 | 0.1049 | 0.1072 |
| 0.1096 | 0.1120 | 0.1144 | 0.1168 | 0.1193 |
| 0.1217 | 0.1242 | 0.1268 | 0.1293 | 0.1319 |
| 0.1345 | 0.1371 | 0.1397 | 0.1424 | 0.1451 |
| 0.1478 | 0.1518 | 0.1558 | 0.1599 | 0.1641 |
| 0.1683 | 0.1725 | 0.1768 | 0.1812 | 0.1856 |
| 0.1900 | 0.1946 | 0.1991 | 0.2037 | 0.2084 |
| 0.2131 | 0.2211 | 0.2291 | 0.2371 | 0.2451 |
| 0.2531 | 0.2646 | 0.2760 | 0.2875 | 0.2989 |
| 0.3103 | 0.3314 | 0.3526 | 0.3797 | 0.4177 |
| 0.4808 | 0.5823 | 0.6203 | 0.6474 | 0.6686 |
| 0.6897 | 0.7011 | 0.7125 | 0.7240 | 0.7354 |
| 0.7469 | 0.7549 | 0.7629 | 0.7709 | 0.7789 |
| 0.7869 | 0.7916 | 0.7963 | 0.8009 | 0.8054 |
| 0.8100 | 0.8144 | 0.8188 | 0.8232 | 0.8275 |
| 0.8317 | 0.8359 | 0.8401 | 0.8442 | 0.8482 |
| 0.8522 | 0.8549 | 0.8576 | 0.8603 | 0.8629 |
| 0.8655 | 0.8681 | 0.8707 | 0.8732 | 0.8758 |
| 0.8783 | 0.8807 | 0.8832 | 0.8856 | 0.8880 |
| 0.8904 | 0.8928 | 0.8951 | 0.8974 | 0.8997 |
| 0.9019 | 0.9042 | 0.9064 | 0.9086 | 0.9107 |
| 0.9129 | 0.9150 | 0.9171 | 0.9191 | 0.9212 |
| 0.9232 | 0.9252 | 0.9272 | 0.9291 | 0.9310 |
| 0.9329 | 0.9348 | 0.9366 | 0.9385 | 0.9403 |
| 0.9420 | 0.9438 | 0.9455 | 0.9472 | 0.9489 |
| 0.9505 | 0.9522 | 0.9538 | 0.9554 | 0.9569 |
| 0.9585 | 0.9600 | 0.9614 | 0.9629 | 0.9643 |
| 0.9658 | 0.9671 | 0.9685 | 0.9699 | 0.9712 |
| 0.9725 | 0.9737 | 0.9750 | 0.9762 | 0.9774 |
| 0.9786 | 0.9797 | 0.9808 | 0.9819 | 0.9830 |
| 0.9841 | 0.9851 | 0.9861 | 0.9871 | 0.9880 |
| 0.9889 | 0.9899 | 0.9907 | 0.9916 | 0.9924 |
| 0.9932 | 0.9940 | 0.9948 | 0.9955 | 0.9962 |
| 0.9969 | 0.9976 | 0.9982 | 0.9988 | 0.999432 |
| 1.0 | | | | |

GLOBAL OUTPUT:

| | | | | |
|---|----|-----|-------|--------|
| 1 | .1 | 0.1 | NNNNN | NNNNNN |
|---|----|-----|-------|--------|

VERIFICATION:

| | | | |
|------------|---------------|---|---|
| DATA PREP | Y Y Y Y Y Y Y | Y | Y |
| PROCESSING | Y Y Y Y Y | Y | Y |

Unnamed Tributary to Broad Branch

Name of printed page file:
C:\Program Files\USDA\WinTR-20 version 1.11.11\0577-Existing.out

STORM 1_yr_sm

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Time (hr) | Peak Rate (cfs) | Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|-----------|-----------------|-----------------|
| Basin 4 | 0.065 | | 1.127 | | 12.14 | 79.1 | 1219.24 |
| Reach 4 | 0.065 | Upstream | 1.127 | 216.71 | 12.14 | 79.1 | 1219.24 |
| Reach 4 | 0.061 | Downstream | 0.007 | 215.63 | 12.15 | 5.2 | 86.12 |
| Reach 4A | 0.004 | Upstream | 17.176 | 215.63 | 12.15 | 72.9 | 17339.88 |

| Line Start Time (hr) | Flow Values @ time increment of 0.100 hr | | | | | | |
|----------------------|--|-------|-------|-------|-------|-------|-------|
| | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 11.100 | 1.5 | 2.1 | 2.4 | 2.6 | 2.9 | 4.5 | 6.6 |
| 11.800 | 8.9 | 14.4 | 28.8 | 63.1 | 61.6 | 30.6 | 19.7 |
| 12.500 | 16.1 | 12.2 | 8.7 | 8.3 | 8.3 | 8.3 | 7.1 |
| 13.200 | 5.9 | 5.8 | 5.8 | 5.8 | 4.7 | 3.5 | 3.3 |
| 13.900 | 3.2 | 3.2 | 3.2 | 3.1 | 3.1 | 3.1 | 3.0 |
| 14.600 | 3.0 | 3.0 | 2.9 | 2.9 | 2.9 | 2.4 | 2.0 |
| 15.300 | 1.9 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 16.000 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 |
| 16.700 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.5 | 1.5 |
| 17.400 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.4 | 1.4 |
| 18.100 | 1.4 | 1.4 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 |
| 18.800 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 |
| 19.500 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 |
| 20.200 | 1.0 | 1.0 | | | | | |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Time (hr) | Peak Rate (cfs) | Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|-----------|-----------------|-----------------|
| Reach 4A | 0.004 | Downstream | 17.143 | 215.63 | 12.15 | 72.9 | 17339.88 |

| Line Start Time (hr) | Flow Values @ time increment of 0.100 hr | | | | | | |
|----------------------|--|-------|-------|-----------|-------|-------|-------|
| | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 11.100 | 1.3 | 1.5 | 0.9 | 0.597E-01 | 0.9 | 3.1 | 6.7 |
| 11.800 | 10.8 | 16.4 | 29.9 | 63.4 | 61.7 | 30.7 | 19.7 |
| 12.500 | 16.1 | 12.2 | 8.7 | 8.3 | 8.3 | 8.3 | 7.1 |
| 13.200 | 5.9 | 5.8 | 5.8 | 5.8 | 4.7 | 3.5 | 3.3 |
| 13.900 | 3.2 | 3.2 | 3.2 | 3.1 | 3.1 | 3.1 | 3.0 |
| 14.600 | 3.0 | 3.0 | 2.9 | 2.9 | 2.9 | 2.4 | 2.0 |
| 15.300 | 1.9 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 16.000 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 |
| 16.700 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.5 | 1.5 |
| 17.400 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.4 | 1.4 |
| 18.100 | 1.4 | 1.4 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 |
| 18.800 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 |
| 19.500 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 |

Unnamed Tributary to Broad Branch

Line
Start Time ----- **Flow Values @ time increment of 0.100 hr** -----
 (hr) (cfs) (cfs) (cfs) (cfs) (cfs) (cfs)

20.200 1.0 1.0

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Time (hr) | Peak Rate (cfs) | Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|-----------|-----------------|-----------------|
| OUTLET | 0.136 | | 0.834 | | 12.13 | 144.9 | 1065.92 |

Line
Start Time ----- **Flow Values @ time increment of 0.100 hr** -----
 (hr) (cfs) (cfs) (cfs) (cfs) (cfs) (cfs)

| | | | | | | | |
|--------|------|------|------|-------|-------|------|------|
| 11.100 | 1.2 | 1.6 | 1.9 | 1.1 | 1.0 | 6.8 | 11.2 |
| 11.800 | 17.1 | 27.4 | 58.6 | 130.2 | 110.6 | 58.8 | 31.7 |
| 12.500 | 27.1 | 18.3 | 13.7 | 13.3 | 13.3 | 13.4 | 11.0 |
| 13.200 | 9.5 | 9.3 | 9.3 | 9.4 | 4.7 | 3.5 | 3.3 |
| 13.900 | 3.2 | 3.2 | 3.2 | 3.1 | 3.1 | 3.1 | 3.0 |
| 14.600 | 3.0 | 3.0 | 2.9 | 2.9 | 2.9 | 2.4 | 2.0 |
| 15.300 | 1.9 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 16.000 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 |
| 16.700 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.5 | 1.5 |
| 17.400 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.4 | 1.4 |
| 18.100 | 1.4 | 1.4 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 |
| 18.800 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 |
| 19.500 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 |
| 20.200 | 1.0 | 1.0 | | | | | |

STORM 2_yr_sm

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Time (hr) | Peak Rate (cfs) | Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|-----------|-----------------|-----------------|
| Basin 4 | 0.065 | | 1.575 | | 12.14 | 107.6 | 1659.88 |
| Reach 4 | 0.065 | Upstream | 1.575 | 216.92 | 12.14 | 107.6 | 1659.88 |
| Reach 4 | 0.061 | Downstream | 0.045 | 215.95 | 12.15 | 18.3 | 302.25 |
| Reach 4A | 0.004 | Upstream | 23.598 | 215.95 | 12.15 | 88.1 | 20959.80 |

Line
Start Time ----- **Flow Values @ time increment of 0.100 hr** -----
 (hr) (cfs) (cfs) (cfs) (cfs) (cfs) (cfs)

| | | | | | | | |
|--------|------|------|------|------|------|------|------|
| 10.700 | 1.6 | 1.8 | 2.0 | 2.2 | 2.9 | 3.7 | 4.1 |
| 11.400 | 4.4 | 4.7 | 7.4 | 10.5 | 13.9 | 21.9 | 42.2 |
| 12.100 | 77.7 | 75.3 | 41.4 | 26.8 | 21.9 | 16.5 | 11.7 |
| 12.800 | 11.1 | 11.1 | 11.1 | 9.4 | 7.9 | 7.6 | 7.6 |
| 13.500 | 7.7 | 6.1 | 4.5 | 4.2 | 4.2 | 4.2 | 4.1 |
| 14.200 | 4.0 | 4.0 | 3.9 | 3.9 | 3.9 | 3.8 | 3.8 |
| 14.900 | 3.7 | 3.7 | 3.0 | 2.5 | 2.4 | 2.3 | 2.3 |
| 15.600 | 2.3 | 2.3 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |
| 16.300 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.0 | 2.0 |
| 17.000 | 2.0 | 2.0 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |

Unnamed Tributary to Broad Branch

| Line | | Flow Values @ time increment of 0.100 hr | | | | | | |
|--------------------|--|--|-------|-------|-------|-------|-------|-------|
| Start Time (hr) | | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 17.700 | | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.7 | 1.7 |
| 18.400 | | 1.7 | 1.7 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| 19.100 | | 1.5 | 1.5 | 1.5 | 1.5 | 1.4 | 1.4 | 1.4 |
| 19.800 | | 1.4 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.2 |
| 20.500 | | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 | 1.0 |
| 21.200 | | 1.0 | 1.0 | | | | | |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Time (hr) | Peak Flow Rate (cfs) | Peak Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|-----------|----------------------|----------------------|
| Reach 4A | 0.004 | Downstream | 23.566 | 215.95 | 12.15 | 88.1 | 20959.80 |

| Line | | Flow Values @ time increment of 0.100 hr | | | | | | |
|--------------------|--|--|-------|-------|-------|-------|-------|-------|
| Start Time (hr) | | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 10.700 | | 3.0 | 3.0 | 2.6 | 2.1 | 1.7 | 1.0 | 0.3 |
| 11.400 | | 1.9 | 3.7 | 8.1 | 11.8 | 15.2 | 22.5 | 42.3 |
| 12.100 | | 77.7 | 75.4 | 41.5 | 26.8 | 21.9 | 16.5 | 11.7 |
| 12.800 | | 11.1 | 11.1 | 11.1 | 9.4 | 7.9 | 7.6 | 7.6 |
| 13.500 | | 7.7 | 6.1 | 4.5 | 4.2 | 4.2 | 4.2 | 4.1 |
| 14.200 | | 4.0 | 4.0 | 3.9 | 3.9 | 3.9 | 3.8 | 3.8 |
| 14.900 | | 3.7 | 3.7 | 3.1 | 2.5 | 2.4 | 2.3 | 2.3 |
| 15.600 | | 2.3 | 2.3 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |
| 16.300 | | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.0 | 2.0 |
| 17.000 | | 2.0 | 2.0 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 17.700 | | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.7 | 1.7 |
| 18.400 | | 1.7 | 1.7 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| 19.100 | | 1.5 | 1.5 | 1.5 | 1.5 | 1.4 | 1.4 | 1.4 |
| 19.800 | | 1.4 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.2 |
| 20.500 | | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 | 1.0 |
| 21.200 | | 1.0 | 1.0 | | | | | |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Time (hr) | Peak Flow Rate (cfs) | Peak Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|-----------|----------------------|----------------------|
| OUTLET | 0.136 | | 1.209 | | 12.13 | 190.7 | 1402.75 |

| Line | | Flow Values @ time increment of 0.100 hr | | | | | | |
|--------------------|--|--|-------|-------|-------|-------|-------|-------|
| Start Time (hr) | | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 10.700 | | 1.9 | 2.7 | 2.6 | 2.0 | 1.7 | 3.5 | 4.2 |
| 11.400 | | 3.2 | 5.9 | 14.0 | 19.9 | 25.7 | 41.7 | 83.7 |
| 12.100 | | 172.5 | 147.9 | 96.8 | 46.9 | 39.5 | 26.0 | 19.5 |
| 12.800 | | 18.8 | 18.8 | 18.9 | 14.5 | 12.5 | 12.2 | 12.2 |
| 13.500 | | 12.3 | 8.3 | 4.5 | 4.2 | 4.2 | 4.2 | 4.1 |
| 14.200 | | 4.0 | 4.0 | 3.9 | 3.9 | 3.9 | 3.8 | 3.8 |
| 14.900 | | 3.7 | 3.7 | 3.1 | 2.5 | 2.4 | 2.3 | 2.3 |
| 15.600 | | 2.3 | 2.3 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |

Unnamed Tributary to Broad Branch

| Line | | Flow Values @ time increment of 0.100 hr | | | | | | |
|--------------------|--|--|-------|-------|-------|-------|-------|-------|
| Start Time (hr) | | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 16.300 | | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.0 | 2.0 |
| 17.000 | | 2.0 | 2.0 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 17.700 | | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.7 | 1.7 |
| 18.400 | | 1.7 | 1.7 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| 19.100 | | 1.5 | 1.5 | 1.5 | 1.5 | 1.4 | 1.4 | 1.4 |
| 19.800 | | 1.4 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.2 |
| 20.500 | | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 | 1.0 |
| 21.200 | | 1.0 | 1.0 | | | | | |

STORM 5_yr_sm

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Time (hr) | Peak Rate (cfs) | Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|-----------|-----------------|-----------------|
| Basin 4 | 0.065 | | 2.366 | | 12.13 | 146.9 | 2265.75 |
| Reach 4 | 0.065 | Upstream | 2.366 | 217.11 | 12.13 | 146.9 | 2265.75 |
| Reach 4 | 0.061 | Downstream | 0.130 | 216.41 | 12.14 | 39.5 | 652.21 |
| Reach 4A | 0.004 | Upstream | 34.402 | 216.41 | 12.14 | 105.9 | 25187.19 |

| Line | | Flow Values @ time increment of 0.100 hr | | | | | | |
|--------------------|--|--|-------|-------|-------|-------|-------|-------|
| Start Time (hr) | | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 10.100 | | 1.4 | 1.6 | 1.6 | 1.8 | 1.9 | 2.7 | 3.7 |
| 10.800 | | 4.0 | 4.2 | 4.5 | 5.8 | 7.2 | 7.8 | 8.2 |
| 11.500 | | 8.6 | 13.4 | 18.5 | 23.7 | 35.6 | 64.1 | 96.9 |
| 12.200 | | 90.8 | 57.8 | 38.3 | 31.9 | 23.8 | 16.9 | 16.0 |
| 12.900 | | 15.9 | 16.0 | 13.5 | 11.2 | 10.8 | 10.9 | 10.9 |
| 13.600 | | 8.5 | 6.4 | 6.0 | 5.9 | 5.8 | 5.8 | 5.7 |
| 14.300 | | 5.6 | 5.6 | 5.5 | 5.4 | 5.4 | 5.3 | 5.2 |
| 15.000 | | 5.2 | 4.3 | 3.5 | 3.3 | 3.3 | 3.2 | 3.2 |
| 15.700 | | 3.2 | 3.1 | 3.1 | 3.1 | 3.1 | 3.0 | 2.9 |
| 16.400 | | 2.9 | 2.9 | 2.9 | 2.9 | 2.8 | 2.8 | 2.8 |
| 17.100 | | 2.7 | 2.7 | 2.7 | 2.6 | 2.6 | 2.6 | 2.6 |
| 17.800 | | 2.6 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 |
| 18.500 | | 2.3 | 2.2 | 2.2 | 2.2 | 2.1 | 2.2 | 2.1 |
| 19.200 | | 2.1 | 2.0 | 2.0 | 2.0 | 1.9 | 1.9 | 1.9 |
| 19.900 | | 1.9 | 1.8 | 1.8 | 1.7 | 1.7 | 1.7 | 1.6 |
| 20.600 | | 1.6 | 1.6 | 1.6 | 1.5 | 1.5 | 1.5 | 1.4 |
| 21.300 | | 1.3 | 1.4 | 1.3 | 1.3 | 1.3 | 1.3 | 1.2 |
| 22.000 | | 1.1 | 1.2 | 1.1 | 1.1 | 1.0 | 1.0 | |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Time (hr) | Peak Rate (cfs) | Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|-----------|-----------------|-----------------|
| Reach 4A | 0.004 | Downstream | 34.340 | 216.41 | 12.14 | 105.9 | 25187.19 |

Unnamed Tributary to Broad Branch

| Line | | Flow Values @ time increment of 0.100 hr | | | | | | |
|--------------------------------|-----------------------------|--|--------------------------|-------------------|--------------|----------------------------|---------------|-------|
| Start Time (hr) | | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 10.100 | | 0.7 | 1.3 | 1.9 | 2.7 | 3.5 | 4.5 | 4.9 |
| 10.800 | | 3.9 | 2.7 | 1.3 | 0.4 | 3.0 | 6.0 | 9.2 |
| 11.500 | | 12.6 | 18.5 | 21.4 | 24.7 | 35.7 | 63.8 | 96.6 |
| 12.200 | | 90.9 | 57.9 | 38.3 | 31.9 | 23.8 | 16.9 | 16.0 |
| 12.900 | | 15.9 | 16.0 | 13.5 | 11.2 | 10.8 | 10.9 | 10.9 |
| 13.600 | | 8.6 | 6.4 | 6.0 | 5.9 | 5.8 | 5.8 | 5.7 |
| 14.300 | | 5.6 | 5.6 | 5.5 | 5.4 | 5.4 | 5.3 | 5.2 |
| 15.000 | | 5.2 | 4.3 | 3.5 | 3.3 | 3.3 | 3.2 | 3.2 |
| 15.700 | | 3.2 | 3.1 | 3.1 | 3.1 | 3.1 | 3.0 | 2.9 |
| 16.400 | | 2.9 | 2.9 | 2.9 | 2.9 | 2.8 | 2.8 | 2.8 |
| 17.100 | | 2.7 | 2.7 | 2.7 | 2.6 | 2.6 | 2.6 | 2.6 |
| 17.800 | | 2.6 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 |
| 18.500 | | 2.3 | 2.2 | 2.2 | 2.2 | 2.1 | 2.2 | 2.1 |
| 19.200 | | 2.1 | 2.0 | 2.0 | 2.0 | 1.9 | 1.9 | 1.9 |
| 19.900 | | 1.9 | 1.8 | 1.8 | 1.7 | 1.7 | 1.7 | 1.6 |
| 20.600 | | 1.6 | 1.6 | 1.6 | 1.5 | 1.5 | 1.5 | 1.4 |
| 21.300 | | 1.3 | 1.4 | 1.3 | 1.3 | 1.3 | 1.3 | 1.2 |
| 22.000 | | 1.1 | 1.2 | 1.1 | 1.1 | 1.0 | 1.0 | |
| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Time (hr) | Peak Flow Rate (cfs) | Rate (csm) | |
| OUTLET | 0.136 | | 1.897 | | 12.13 | 252.8 | 1859.80 | |
| Line | Start Time (hr) | Flow Values @ time increment of 0.100 hr | | | | | | |
| | | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 10.100 | | 0.9 | 1.5 | 1.9 | 2.0 | 2.6 | 4.5 | 5.3 |
| 10.800 | | 4.8 | 4.0 | 4.7 | 6.0 | 7.8 | 12.0 | 14.5 |
| 11.500 | | 16.4 | 26.4 | 34.6 | 44.7 | 67.8 | 131.8 | 233.4 |
| 12.200 | | 199.6 | 146.2 | 87.1 | 60.9 | 40.8 | 28.0 | 26.9 |
| 12.900 | | 26.9 | 27.0 | 21.9 | 18.7 | 18.3 | 18.4 | 18.4 |
| 13.600 | | 12.9 | 10.0 | 9.5 | 9.4 | 9.3 | 9.2 | 9.1 |
| 14.300 | | 9.0 | 7.9 | 7.8 | 7.7 | 7.6 | 7.5 | 7.4 |
| 15.000 | | 7.3 | 4.3 | 3.5 | 3.3 | 3.3 | 3.2 | 3.2 |
| 15.700 | | 3.2 | 3.1 | 3.1 | 3.1 | 3.1 | 3.0 | 2.9 |
| 16.400 | | 2.9 | 2.9 | 2.9 | 2.9 | 2.8 | 2.8 | 2.8 |
| 17.100 | | 2.7 | 2.7 | 2.7 | 2.6 | 2.6 | 2.6 | 2.6 |
| 17.800 | | 2.6 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 |
| 18.500 | | 2.3 | 2.2 | 2.2 | 2.2 | 2.1 | 2.2 | 2.1 |
| 19.200 | | 2.1 | 2.0 | 2.0 | 2.0 | 1.9 | 1.9 | 1.9 |
| 19.900 | | 1.9 | 1.8 | 1.8 | 1.7 | 1.7 | 1.7 | 1.6 |
| 20.600 | | 1.6 | 1.6 | 1.6 | 1.5 | 1.5 | 1.5 | 1.4 |
| 21.300 | | 1.3 | 1.4 | 1.3 | 1.3 | 1.3 | 1.3 | 1.2 |
| 22.000 | | 1.1 | 1.2 | 1.1 | 1.1 | 1.0 | 1.0 | |

STORM 10_yr_sm

Unnamed Tributary to Broad Branch

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Time (hr) | Peak Rate (cfs) | Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|-----------|-----------------|-----------------|
| Basin 4 | 0.065 | | 3.080 | | 12.14 | 177.0 | 2729.94 |
| Reach 4 | 0.065 | Upstream | 3.080 | 217.25 | 12.14 | 177.0 | 2729.94 |
| Reach 4 | 0.061 | Downstream | 0.242 | 216.64 | 12.15 | 69.0 | 1137.17 |
| Reach 4A | 0.004 | Upstream | 43.935 | 216.64 | 12.15 | 106.5 | 25342.68 |

Line

| Start Time (hr) | Flow Values @ time increment of 0.100 hr | | | | | | |
|-----------------|--|-------|-------|-------|-------|-------|-------|
| | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 9.200 | 0.3 | 1.6 | 1.7 | 1.8 | 2.0 | 2.1 | 2.2 |
| 9.900 | 2.3 | 2.5 | 2.6 | 2.7 | 2.9 | 3.0 | 3.1 |
| 10.600 | 4.5 | 6.0 | 6.4 | 6.7 | 6.9 | 8.9 | 10.9 |
| 11.300 | 11.6 | 12.1 | 12.5 | 19.1 | 25.8 | 32.5 | 47.5 |
| 12.000 | 75.1 | 106.1 | 102.4 | 69.1 | 47.5 | 39.7 | 29.8 |
| 12.700 | 21.3 | 20.1 | 20.0 | 20.1 | 17.0 | 14.1 | 13.7 |
| 13.400 | 13.7 | 13.8 | 10.8 | 8.1 | 7.6 | 7.5 | 7.4 |
| 14.100 | 7.3 | 7.2 | 7.2 | 7.1 | 7.0 | 6.9 | 6.8 |
| 14.800 | 6.7 | 6.7 | 6.6 | 5.4 | 4.4 | 4.2 | 4.2 |
| 15.500 | 4.1 | 4.1 | 4.0 | 4.0 | 4.0 | 4.0 | 3.9 |
| 16.200 | 3.8 | 3.8 | 3.8 | 3.8 | 3.7 | 3.6 | 3.6 |
| 16.900 | 3.5 | 3.5 | 3.5 | 3.5 | 3.4 | 3.4 | 3.4 |
| 17.600 | 3.3 | 3.3 | 3.2 | 3.2 | 3.2 | 3.1 | 3.0 |
| 18.300 | 3.0 | 3.0 | 2.9 | 2.9 | 2.8 | 2.8 | 2.8 |
| 19.000 | 2.7 | 2.7 | 2.7 | 2.6 | 2.6 | 2.6 | 2.5 |
| 19.700 | 2.4 | 2.4 | 2.4 | 2.4 | 2.3 | 2.3 | 2.2 |
| 20.400 | 2.1 | 2.2 | 2.1 | 2.0 | 2.0 | 1.9 | 1.9 |
| 21.100 | 1.9 | 1.8 | 1.8 | 1.7 | 1.7 | 1.7 | 1.7 |
| 21.800 | 1.7 | 1.6 | 1.5 | 1.5 | 1.5 | 1.4 | 1.4 |
| 22.500 | 1.4 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| 23.200 | 1.1 | 1.0 | | | | | |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Time (hr) | Peak Rate (cfs) | Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|-----------|-----------------|-----------------|
| Reach 4A | 0.004 | Downstream | 43.875 | 216.64 | 12.15 | 106.5 | 25342.68 |

Line

| Start Time (hr) | Flow Values @ time increment of 0.100 hr | | | | | | |
|-----------------|--|-------|-------|-------|-------|-------|-------|
| | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 9.300 | 1.8 | 1.3 | 0.7 | 0.1 | 0.6 | 1.4 | 2.3 |
| 10.000 | 3.3 | 4.4 | 5.1 | 4.3 | 3.4 | 2.5 | 1.9 |
| 10.700 | 0.6 | 1.6 | 4.0 | 6.6 | 10.8 | 13.4 | 13.7 |
| 11.400 | 12.8 | 12.7 | 19.0 | 25.7 | 32.3 | 47.4 | 75.0 |
| 12.100 | 106.1 | 102.4 | 69.1 | 47.5 | 39.7 | 29.8 | 21.3 |
| 12.800 | 20.1 | 20.0 | 20.1 | 17.0 | 14.1 | 13.7 | 13.7 |
| 13.500 | 13.8 | 10.9 | 8.1 | 7.6 | 7.5 | 7.4 | 7.3 |
| 14.200 | 7.2 | 7.2 | 7.1 | 7.0 | 6.9 | 6.8 | 6.7 |
| 14.900 | 6.7 | 6.6 | 5.4 | 4.4 | 4.2 | 4.2 | 4.1 |
| 15.600 | 4.1 | 4.0 | 4.0 | 4.0 | 4.0 | 3.9 | 3.8 |
| 16.300 | 3.8 | 3.8 | 3.8 | 3.7 | 3.6 | 3.6 | 3.5 |

Unnamed Tributary to Broad Branch

| Line | | Flow Values @ time increment of 0.100 hr | | | | | | |
|--------------------|--|--|-------|-------|-------|-------|-------|-------|
| Start Time (hr) | | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 17.000 | | 3.5 | 3.5 | 3.5 | 3.4 | 3.4 | 3.4 | 3.3 |
| 17.700 | | 3.3 | 3.2 | 3.2 | 3.2 | 3.1 | 3.0 | 3.0 |
| 18.400 | | 3.0 | 2.9 | 2.9 | 2.8 | 2.8 | 2.8 | 2.7 |
| 19.100 | | 2.7 | 2.7 | 2.6 | 2.6 | 2.6 | 2.5 | 2.4 |
| 19.800 | | 2.4 | 2.4 | 2.4 | 2.3 | 2.3 | 2.2 | 2.1 |
| 20.500 | | 2.2 | 2.1 | 2.0 | 2.0 | 1.9 | 1.9 | 1.9 |
| 21.200 | | 1.8 | 1.8 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 |
| 21.900 | | 1.6 | 1.5 | 1.5 | 1.5 | 1.4 | 1.4 | 1.4 |
| 22.600 | | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 |
| 23.300 | | 1.0 | | | | | | |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Time (hr) | Peak Rate (cfs) | Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|-----------|-----------------|-----------------|
| OUTLET | 0.136 | | 2.517 | | 12.13 | 290.3 | 2135.83 |

| Line | | Flow Values @ time increment of 0.100 hr | | | | | | |
|--------------------|--|--|-------|-------|-------|-------|-------|-------|
| Start Time (hr) | | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 9.300 | | 1.8 | 1.4 | 0.7 | 1.1 | 1.6 | 1.4 | 2.1 |
| 10.000 | | 3.1 | 4.4 | 3.6 | 3.3 | 3.4 | 3.0 | 5.0 |
| 10.700 | | 4.2 | 8.6 | 9.7 | 11.0 | 15.6 | 21.0 | 21.4 |
| 11.400 | | 21.1 | 21.7 | 36.4 | 46.3 | 61.7 | 95.3 | 164.7 |
| 12.100 | | 277.6 | 238.8 | 181.9 | 128.5 | 81.9 | 53.9 | 38.3 |
| 12.800 | | 36.3 | 36.3 | 36.5 | 27.5 | 23.7 | 23.1 | 23.2 |
| 13.500 | | 23.3 | 16.3 | 12.7 | 12.1 | 12.0 | 11.8 | 11.7 |
| 14.200 | | 11.5 | 11.4 | 11.3 | 11.2 | 11.0 | 10.9 | 10.7 |
| 14.900 | | 10.6 | 10.5 | 5.8 | 4.4 | 4.2 | 4.2 | 4.1 |
| 15.600 | | 4.1 | 4.0 | 4.0 | 4.0 | 4.0 | 3.9 | 3.8 |
| 16.300 | | 3.8 | 3.8 | 3.8 | 3.7 | 3.6 | 3.6 | 3.5 |
| 17.000 | | 3.5 | 3.5 | 3.5 | 3.4 | 3.4 | 3.4 | 3.3 |
| 17.700 | | 3.3 | 3.2 | 3.2 | 3.2 | 3.1 | 3.0 | 3.0 |
| 18.400 | | 3.0 | 2.9 | 2.9 | 2.8 | 2.8 | 2.8 | 2.7 |
| 19.100 | | 2.7 | 2.7 | 2.6 | 2.6 | 2.6 | 2.5 | 2.4 |
| 19.800 | | 2.4 | 2.4 | 2.4 | 2.3 | 2.3 | 2.2 | 2.1 |
| 20.500 | | 2.2 | 2.1 | 2.0 | 2.0 | 1.9 | 1.9 | 1.9 |
| 21.200 | | 1.8 | 1.8 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 |
| 21.900 | | 1.6 | 1.5 | 1.5 | 1.5 | 1.4 | 1.4 | 1.4 |
| 22.600 | | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 |
| 23.300 | | 1.0 | | | | | | |

STORM 25_yr_sm

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Time (hr) | Peak Rate (cfs) | Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|-----------|-----------------|-----------------|
| Basin 4 | 0.065 | | 4.213 | | 12.14 | 217.9 | 3361.30 |
| Reach 4 | 0.065 | Upstream | 4.213 | 217.44 | 12.14 | 217.9 | 3361.30 |
| Reach 4 | 0.061 | Downstream | 0.444 | 216.93 | 12.14 | 108.8 | 1794.26 |

Unnamed Tributary to Broad Branch

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Time (hr) | Peak Rate (cfs) | Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|-----------|-----------------|-----------------|
| Reach 4A | 0.004 | Upstream | 58.048 | 216.93 | 12.14 | 107.4 | 25543.17 |

Line

| Start Time (hr) | Flow Values @ time increment of 0.100 hr | | | | | |
|-----------------|--|-------|-------|-------|-------|-------|
| | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 8.700 | 1.8 | 1.8 | 1.9 | 2.0 | 2.6 | 3.2 |
| 9.400 | 3.6 | 3.7 | 3.9 | 4.1 | 4.3 | 4.4 |
| 10.100 | 4.8 | 5.0 | 5.1 | 5.3 | 5.5 | 5.9 |
| 10.800 | 10.5 | 10.9 | 11.2 | 14.1 | 16.9 | 17.7 |
| 11.500 | 18.8 | 27.9 | 36.9 | 45.3 | 64.3 | 88.6 |
| 12.200 | 106.3 | 77.9 | 60.1 | 50.7 | 38.2 | 27.7 |
| 12.900 | 26.0 | 26.2 | 22.3 | 18.6 | 18.1 | 18.0 |
| 13.600 | 14.4 | 10.8 | 10.2 | 10.0 | 9.9 | 9.8 |
| 14.300 | 9.6 | 9.5 | 9.4 | 9.2 | 9.2 | 9.0 |
| 15.000 | 8.8 | 7.3 | 6.0 | 5.7 | 5.7 | 5.6 |
| 15.700 | 5.5 | 5.4 | 5.5 | 5.4 | 5.3 | 5.3 |
| 16.400 | 5.2 | 5.0 | 5.0 | 5.0 | 4.9 | 4.9 |
| 17.100 | 4.8 | 4.8 | 4.7 | 4.6 | 4.6 | 4.5 |
| 17.800 | 4.5 | 4.3 | 4.2 | 4.2 | 4.2 | 4.1 |
| 18.500 | 4.0 | 4.0 | 4.0 | 3.9 | 3.8 | 3.8 |
| 19.200 | 3.8 | 3.7 | 3.5 | 3.5 | 3.4 | 3.3 |
| 19.900 | 3.3 | 3.2 | 3.2 | 3.2 | 3.2 | 3.0 |
| 20.600 | 2.9 | 2.8 | 2.8 | 2.7 | 2.7 | 2.6 |
| 21.300 | 2.5 | 2.5 | 2.5 | 2.4 | 2.4 | 2.1 |
| 22.000 | 2.1 | 2.1 | 2.1 | 2.0 | 1.9 | 1.9 |
| 22.700 | 1.8 | 1.8 | 1.7 | 1.7 | 1.5 | 1.4 |
| 23.400 | 1.4 | 1.4 | 1.3 | 1.2 | 1.2 | 1.1 |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Time (hr) | Peak Rate (cfs) | Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|-----------|-----------------|-----------------|
| Reach 4A | 0.004 | Downstream | 57.984 | 216.93 | 12.14 | 107.4 | 25543.17 |

Line

| Start Time (hr) | Flow Values @ time increment of 0.100 hr | | | | | |
|-----------------|--|-------|-------|-------|-------|-------|
| | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 8.700 | 1.6 | 2.3 | 3.1 | 3.9 | 4.0 | 3.1 |
| 9.400 | 2.0 | 0.8 | 0.6 | 2.0 | 3.6 | 7.1 |
| 10.100 | 9.1 | 8.3 | 6.7 | 5.1 | 3.3 | 7.4 |
| 10.800 | 9.6 | 10.6 | 11.3 | 14.3 | 17.1 | 18.3 |
| 11.500 | 18.8 | 27.9 | 36.9 | 45.3 | 64.3 | 88.6 |
| 12.200 | 106.4 | 77.9 | 60.2 | 50.7 | 38.2 | 27.7 |
| 12.900 | 26.0 | 26.2 | 22.3 | 18.6 | 18.1 | 18.1 |
| 13.600 | 14.4 | 10.8 | 10.2 | 10.0 | 9.9 | 9.7 |
| 14.300 | 9.6 | 9.5 | 9.4 | 9.2 | 9.2 | 9.0 |
| 15.000 | 8.8 | 7.3 | 6.0 | 5.7 | 5.7 | 5.6 |
| 15.700 | 5.5 | 5.4 | 5.5 | 5.4 | 5.3 | 5.3 |
| 16.400 | 5.2 | 5.0 | 5.0 | 5.0 | 4.9 | 4.8 |
| 17.100 | 4.8 | 4.8 | 4.7 | 4.6 | 4.6 | 4.5 |

Unnamed Tributary to Broad Branch

| Line | | Flow Values @ time increment of 0.100 hr | | | | | | |
|--------------------|--|--|-------|-------|-------|-------|-------|-------|
| Start Time (hr) | | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 17.800 | | 4.5 | 4.3 | 4.2 | 4.2 | 4.2 | 4.2 | 4.1 |
| 18.500 | | 4.0 | 4.0 | 4.0 | 3.9 | 3.8 | 3.8 | 3.8 |
| 19.200 | | 3.8 | 3.7 | 3.5 | 3.5 | 3.4 | 3.3 | 3.4 |
| 19.900 | | 3.3 | 3.2 | 3.2 | 3.2 | 3.2 | 3.0 | 3.0 |
| 20.600 | | 2.9 | 2.8 | 2.8 | 2.7 | 2.7 | 2.7 | 2.6 |
| 21.300 | | 2.5 | 2.5 | 2.5 | 2.4 | 2.4 | 2.2 | 2.1 |
| 22.000 | | 2.1 | 2.1 | 2.1 | 2.0 | 1.9 | 1.9 | 1.8 |
| 22.700 | | 1.8 | 1.8 | 1.7 | 1.7 | 1.5 | 1.4 | 1.4 |
| 23.400 | | 1.4 | 1.4 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Time (hr) | Peak Rate (cfs) | Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|-----------|-----------------|-----------------|
| OUTLET | 0.136 | | 3.507 | | 12.22 | 347.0 | 2552.26 |

| Line | | Flow Values @ time increment of 0.100 hr | | | | | | |
|--------------------|--|--|-------|-------|-------|-------|-------|-------|
| Start Time (hr) | | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 8.700 | | 1.8 | 1.9 | 2.1 | 2.2 | 2.9 | 4.2 | 3.2 |
| 9.400 | | 3.2 | 3.0 | 4.5 | 4.3 | 4.4 | 5.8 | 6.2 |
| 10.100 | | 8.2 | 7.6 | 8.5 | 8.0 | 7.3 | 12.8 | 15.7 |
| 10.800 | | 18.0 | 18.4 | 19.2 | 25.2 | 29.3 | 30.3 | 31.5 |
| 11.500 | | 33.1 | 52.8 | 70.4 | 91.0 | 132.4 | 207.1 | 323.4 |
| 12.200 | | 332.1 | 228.8 | 158.7 | 118.0 | 74.7 | 52.0 | 47.3 |
| 12.900 | | 47.2 | 47.4 | 38.9 | 33.4 | 32.7 | 32.6 | 32.7 |
| 13.600 | | 22.8 | 17.0 | 16.3 | 16.0 | 15.9 | 15.6 | 15.5 |
| 14.300 | | 15.3 | 15.2 | 14.9 | 14.6 | 14.7 | 14.4 | 14.3 |
| 15.000 | | 14.0 | 11.2 | 9.5 | 9.1 | 9.2 | 9.1 | 8.9 |
| 15.700 | | 8.7 | 8.6 | 8.8 | 7.5 | 7.5 | 7.4 | 7.5 |
| 16.400 | | 7.4 | 7.1 | 7.1 | 7.1 | 7.0 | 6.9 | 5.8 |
| 17.100 | | 5.8 | 4.8 | 4.7 | 4.6 | 4.6 | 4.6 | 4.5 |
| 17.800 | | 4.5 | 4.3 | 4.2 | 4.2 | 4.2 | 4.2 | 4.1 |
| 18.500 | | 4.0 | 4.0 | 4.0 | 3.9 | 3.8 | 3.8 | 3.8 |
| 19.200 | | 3.8 | 3.7 | 3.5 | 3.5 | 3.4 | 3.3 | 3.4 |
| 19.900 | | 3.3 | 3.2 | 3.2 | 3.2 | 3.2 | 3.0 | 3.0 |
| 20.600 | | 2.9 | 2.8 | 2.8 | 2.7 | 2.7 | 2.7 | 2.6 |
| 21.300 | | 2.5 | 2.5 | 2.5 | 2.4 | 2.4 | 2.2 | 2.1 |
| 22.000 | | 2.1 | 2.1 | 2.1 | 2.0 | 1.9 | 1.9 | 1.8 |
| 22.700 | | 1.8 | 1.8 | 1.7 | 1.7 | 1.5 | 1.4 | 1.4 |
| 23.400 | | 1.4 | 1.4 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 |

STORM 50_yr_sm

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Time (hr) | Peak Rate (cfs) | Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|-----------|-----------------|-----------------|
| Basin 4 | 0.065 | | 5.237 | | 12.13 | 246.9 | 3808.11 |
| Reach 4 | 0.065 | Upstream | 5.237 | 217.54 | 12.13 | 246.9 | 3808.11 |
| Reach 4 | 0.061 | Downstream | 0.629 | 217.06 | 12.14 | 137.1 | 2261.89 |

Unnamed Tributary to Broad Branch

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Time (hr) | Peak Rate (cfs) | Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|-----------|-----------------|-----------------|
| Reach 4A | 0.004 | Upstream | 71.249 | 217.06 | 12.14 | 107.8 | 25635.21 |

Line

| Start Time (hr) | Flow Values @ time increment of 0.100 hr | | | | | |
|-----------------|--|-------|-------|-------|-------|-------|
| | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 7.400 | 1.3 | 1.8 | 1.9 | 2.0 | 2.0 | 2.2 |
| 8.100 | 2.3 | 2.4 | 2.5 | 2.6 | 2.7 | 2.8 |
| 8.800 | 3.0 | 3.1 | 3.2 | 4.1 | 4.9 | 5.3 |
| 9.500 | 5.7 | 5.9 | 6.1 | 6.4 | 6.5 | 6.8 |
| 10.200 | 7.2 | 7.4 | 7.7 | 7.9 | 11.0 | 13.8 |
| 10.900 | 15.0 | 15.3 | 19.1 | 22.6 | 23.6 | 24.2 |
| 11.600 | 36.1 | 47.1 | 57.3 | 73.5 | 98.8 | 107.4 |
| 12.300 | 86.6 | 69.5 | 60.8 | 45.9 | 33.6 | 32.0 |
| 13.000 | 31.7 | 27.1 | 22.8 | 22.2 | 22.0 | 22.0 |
| 13.700 | 13.4 | 12.7 | 12.4 | 12.2 | 12.2 | 12.0 |
| 14.400 | 11.8 | 11.6 | 11.5 | 11.3 | 11.2 | 11.0 |
| 15.100 | 9.1 | 7.5 | 7.2 | 7.0 | 7.0 | 7.0 |
| 15.800 | 6.9 | 6.7 | 6.7 | 6.6 | 6.6 | 6.6 |
| 16.500 | 6.3 | 6.3 | 6.3 | 6.2 | 6.1 | 6.2 |
| 17.200 | 5.9 | 5.8 | 5.8 | 5.8 | 5.6 | 5.6 |
| 17.900 | 5.5 | 5.5 | 5.4 | 5.2 | 5.2 | 5.2 |
| 18.600 | 4.9 | 5.0 | 4.9 | 4.8 | 4.7 | 4.7 |
| 19.300 | 4.5 | 4.5 | 4.4 | 4.4 | 4.4 | 4.1 |
| 20.000 | 4.1 | 4.0 | 4.0 | 4.0 | 3.8 | 3.7 |
| 20.700 | 3.7 | 3.5 | 3.4 | 3.4 | 3.4 | 3.4 |
| 21.400 | 3.1 | 3.1 | 3.0 | 2.9 | 3.0 | 2.8 |
| 22.100 | 2.7 | 2.6 | 2.6 | 2.5 | 2.4 | 2.4 |
| 22.800 | 2.2 | 2.3 | 2.1 | 2.0 | 2.0 | 1.8 |
| 23.500 | 1.7 | 1.7 | 1.7 | 1.6 | 1.5 | 1.4 |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Time (hr) | Peak Rate (cfs) | Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|-----------|-----------------|-----------------|
| Reach 4A | 0.004 | Downstream | 71.133 | 217.06 | 12.15 | 107.8 | 25635.21 |

Line

| Start Time (hr) | Flow Values @ time increment of 0.100 hr | | | | | |
|-----------------|--|-------|-------|-------|-------|-------|
| | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 7.400 | 1.8 | 3.3 | 3.3 | 2.7 | 2.1 | 1.5 |
| 8.100 | 0.319E-01 | 0.9 | 1.8 | 2.8 | 3.9 | 5.0 |
| 8.800 | 4.3 | 3.3 | 2.4 | 1.5 | 0.2 | 1.7 |
| 9.500 | 5.8 | 8.1 | 10.5 | 11.7 | 9.7 | 7.7 |
| 10.200 | 3.1 | 0.6 | 2.0 | 4.9 | 10.7 | 15.0 |
| 10.900 | 16.2 | 15.8 | 19.2 | 22.6 | 23.5 | 24.1 |
| 11.600 | 36.1 | 47.1 | 57.2 | 73.4 | 98.7 | 107.4 |
| 12.300 | 86.7 | 69.5 | 60.8 | 46.0 | 33.7 | 32.0 |
| 13.000 | 31.7 | 27.1 | 22.8 | 22.2 | 22.0 | 22.0 |
| 13.700 | 13.4 | 12.7 | 12.4 | 12.2 | 12.2 | 12.0 |
| 14.400 | 11.8 | 11.6 | 11.5 | 11.3 | 11.2 | 11.0 |

Unnamed Tributary to Broad Branch

| Line | | Flow Values @ time increment of 0.100 hr | | | | | | |
|--------------------------|-----------------------|--|--------------------|----------------|-----------|----------------------|-----------------|-------|
| Start Time (hr) | | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 15.100 | | 9.1 | 7.5 | 7.2 | 7.0 | 7.0 | 7.0 | 7.0 |
| 15.800 | | 6.9 | 6.7 | 6.7 | 6.6 | 6.6 | 6.6 | 6.3 |
| 16.500 | | 6.3 | 6.3 | 6.3 | 6.2 | 6.1 | 6.2 | 6.0 |
| 17.200 | | 5.9 | 5.8 | 5.8 | 5.8 | 5.6 | 5.6 | 5.5 |
| 17.900 | | 5.5 | 5.5 | 5.4 | 5.2 | 5.2 | 5.2 | 5.1 |
| 18.600 | | 4.9 | 4.9 | 4.9 | 4.8 | 4.7 | 4.7 | 4.6 |
| 19.300 | | 4.5 | 4.5 | 4.4 | 4.4 | 4.4 | 4.1 | 4.1 |
| 20.000 | | 4.1 | 4.0 | 4.0 | 4.0 | 3.8 | 3.7 | 3.7 |
| 20.700 | | 3.7 | 3.5 | 3.4 | 3.4 | 3.4 | 3.4 | 3.3 |
| 21.400 | | 3.1 | 3.1 | 3.0 | 2.9 | 3.0 | 2.8 | 2.7 |
| 22.100 | | 2.7 | 2.6 | 2.6 | 2.5 | 2.4 | 2.4 | 2.3 |
| 22.800 | | 2.2 | 2.3 | 2.1 | 2.0 | 2.0 | 1.8 | 1.7 |
| 23.500 | | 1.7 | 1.7 | 1.7 | 1.6 | 1.5 | 1.4 | |
| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Time (hr) | Peak Flow Rate (cfs) | Flow Rate (csm) | |
| OUTLET | 0.136 | | 4.475 | | 12.19 | 409.9 | 3015.43 | |
| Line | | Flow Values @ time increment of 0.100 hr | | | | | | |
| Start Time (hr) | | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 7.400 | | 1.5 | 2.4 | 2.2 | 2.7 | 2.3 | 1.8 | 1.2 |
| 8.100 | | 1.6 | 1.9 | 1.6 | 2.4 | 3.5 | 4.4 | 3.5 |
| 8.800 | | 3.5 | 3.6 | 3.1 | 3.4 | 4.4 | 6.6 | 6.9 |
| 9.500 | | 8.0 | 9.1 | 13.1 | 13.2 | 11.4 | 12.1 | 11.0 |
| 10.200 | | 10.2 | 7.0 | 9.5 | 11.7 | 19.0 | 24.0 | 25.5 |
| 10.900 | | 26.7 | 26.4 | 35.1 | 40.1 | 41.9 | 43.9 | 44.8 |
| 11.600 | | 72.1 | 93.2 | 117.7 | 158.0 | 244.8 | 355.9 | 409.0 |
| 12.300 | | 268.6 | 180.7 | 149.0 | 93.0 | 66.3 | 61.4 | 60.9 |
| 13.000 | | 61.1 | 49.7 | 41.0 | 40.1 | 39.8 | 39.9 | 28.3 |
| 13.700 | | 22.3 | 21.3 | 20.8 | 20.6 | 20.6 | 20.1 | 20.0 |
| 14.400 | | 19.9 | 19.5 | 19.3 | 19.0 | 18.8 | 18.5 | 17.4 |
| 15.100 | | 14.0 | 11.9 | 11.4 | 11.2 | 11.2 | 11.2 | 11.2 |
| 15.800 | | 10.9 | 10.7 | 10.7 | 10.5 | 10.6 | 10.4 | 10.0 |
| 16.500 | | 10.1 | 10.0 | 10.1 | 9.7 | 9.7 | 9.8 | 9.6 |
| 17.200 | | 9.4 | 9.1 | 9.2 | 9.1 | 9.0 | 9.0 | 8.7 |
| 17.900 | | 8.8 | 7.7 | 7.6 | 7.3 | 7.4 | 7.3 | 7.2 |
| 18.600 | | 5.9 | 6.0 | 5.1 | 4.8 | 4.7 | 4.7 | 4.6 |
| 19.300 | | 4.5 | 4.5 | 4.4 | 4.4 | 4.4 | 4.1 | 4.1 |
| 20.000 | | 4.1 | 4.0 | 4.0 | 4.0 | 3.8 | 3.7 | 3.7 |
| 20.700 | | 3.7 | 3.5 | 3.4 | 3.4 | 3.4 | 3.4 | 3.3 |
| 21.400 | | 3.1 | 3.1 | 3.0 | 2.9 | 3.0 | 2.8 | 2.7 |
| 22.100 | | 2.7 | 2.6 | 2.6 | 2.5 | 2.4 | 2.4 | 2.3 |
| 22.800 | | 2.2 | 2.3 | 2.1 | 2.0 | 2.0 | 1.8 | 1.7 |
| 23.500 | | 1.7 | 1.7 | 1.7 | 1.6 | 1.5 | 1.4 | |

STORM 100_yr_sm

Unnamed Tributary to Broad Branch

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Time (hr) | Peak Rate (cfs) | Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|-----------|-----------------|-----------------|
| Basin 4 | 0.065 | | 6.398 | | 12.13 | 277.2 | 4274.71 |
| Reach 4 | 0.065 | Upstream | 6.398 | 217.64 | 12.13 | 277.2 | 4274.71 |
| Reach 4 | 0.061 | Downstream | 0.852 | 217.20 | 12.14 | 166.8 | 2751.60 |
| Reach 4A | 0.004 | Upstream | 86.044 | 217.20 | 12.14 | 108.2 | 25731.58 |

Line

| Start Time (hr) | Flow Values @ time increment of 0.100 hr | | | | | | |
|-----------------|--|-------|-------|-------|-------|-------|-------|
| | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 6.300 | 1.8 | 1.9 | 2.0 | 2.1 | 2.2 | 2.3 | 2.4 |
| 7.000 | 2.6 | 2.6 | 2.7 | 2.9 | 2.9 | 3.1 | 3.2 |
| 7.700 | 3.3 | 3.4 | 3.6 | 3.6 | 3.7 | 3.9 | 4.0 |
| 8.400 | 4.1 | 4.3 | 4.3 | 4.4 | 4.6 | 4.7 | 4.8 |
| 9.100 | 6.1 | 7.3 | 7.6 | 8.0 | 8.3 | 8.4 | 8.7 |
| 9.800 | 9.0 | 9.3 | 9.4 | 9.8 | 10.0 | 10.2 | 10.5 |
| 10.500 | 10.8 | 14.7 | 18.4 | 19.2 | 19.6 | 19.9 | 24.6 |
| 11.200 | 28.8 | 29.9 | 30.4 | 30.8 | 44.3 | 57.1 | 67.4 |
| 11.900 | 80.4 | 105.9 | 107.8 | 107.3 | 93.4 | 75.0 | 68.6 |
| 12.600 | 53.2 | 39.3 | 37.6 | 37.3 | 37.4 | 32.0 | 27.0 |
| 13.300 | 26.4 | 26.3 | 26.3 | 21.0 | 16.3 | 15.4 | 15.0 |
| 14.000 | 15.0 | 14.8 | 14.6 | 14.5 | 14.4 | 14.1 | 13.9 |
| 14.700 | 13.9 | 13.7 | 13.4 | 13.3 | 11.2 | 9.3 | 9.0 |
| 15.400 | 8.8 | 8.7 | 8.6 | 8.6 | 8.5 | 8.5 | 8.5 |
| 16.100 | 8.2 | 8.2 | 8.1 | 8.0 | 8.0 | 8.0 | 7.8 |
| 16.800 | 7.7 | 7.7 | 7.5 | 7.5 | 7.5 | 7.4 | 7.2 |
| 17.500 | 7.2 | 7.1 | 7.0 | 6.8 | 6.9 | 6.8 | 6.7 |
| 18.200 | 6.7 | 6.5 | 6.4 | 6.3 | 6.3 | 6.2 | 6.2 |
| 18.900 | 6.2 | 5.9 | 5.9 | 5.8 | 5.7 | 5.7 | 5.5 |
| 19.600 | 5.5 | 5.5 | 5.4 | 5.2 | 5.2 | 5.2 | 4.9 |
| 20.300 | 4.9 | 4.8 | 4.9 | 4.7 | 4.6 | 4.7 | 4.5 |
| 21.000 | 4.4 | 4.2 | 4.2 | 4.2 | 4.0 | 4.0 | 3.9 |
| 21.700 | 3.7 | 3.7 | 3.7 | 3.7 | 3.5 | 3.4 | 3.4 |
| 22.400 | 3.2 | 3.0 | 3.2 | 3.0 | 2.9 | 2.8 | 2.7 |
| 23.100 | 2.7 | 2.7 | 2.5 | 2.4 | 2.4 | 2.3 | 2.2 |
| 23.800 | 2.0 | 2.1 | 2.0 | | | | |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Time (hr) | Peak Rate (cfs) | Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|-----------|-----------------|-----------------|
| Reach 4A | 0.004 | Downstream | 85.859 | 217.20 | 12.14 | 108.2 | 25731.58 |

Line

| Start Time (hr) | Flow Values @ time increment of 0.100 hr | | | | | | |
|-----------------|--|-------|-------|-------|-------|-------|-----------|
| | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 6.300 | 2.9 | 2.4 | 1.9 | 1.3 | 0.6 | 0.2 | 1.1 |
| 7.000 | 2.0 | 3.0 | 4.1 | 5.3 | 5.1 | 4.2 | 3.3 |
| 7.700 | 2.2 | 1.1 | 0.1 | 1.4 | 2.8 | 4.3 | 5.8 |
| 8.400 | 7.4 | 7.5 | 6.2 | 4.7 | 3.3 | 1.7 | 0.570E-01 |
| 9.100 | 2.1 | 5.0 | 8.0 | 11.1 | 14.4 | 15.3 | 12.7 |
| 9.800 | 10.0 | 7.1 | 3.9 | 0.6 | 2.9 | 6.5 | 10.4 |

Unnamed Tributary to Broad Branch

| Line | | Flow Values @ time increment of 0.100 hr | | | | | | |
|--------------------------|-----------------------|--|--------------------|----------------|-----------|-----------------|-----------------|-------|
| Start Time (hr) | | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 10.500 | | 14.5 | 19.6 | 22.1 | 20.6 | 19.9 | 19.8 | 24.3 |
| 11.200 | | 28.5 | 29.7 | 30.4 | 30.8 | 44.3 | 57.1 | 67.4 |
| 11.900 | | 80.4 | 105.9 | 107.8 | 107.3 | 93.5 | 75.0 | 68.6 |
| 12.600 | | 53.2 | 39.3 | 37.6 | 37.3 | 37.4 | 32.0 | 27.0 |
| 13.300 | | 26.4 | 26.3 | 26.3 | 21.0 | 16.3 | 15.4 | 15.0 |
| 14.000 | | 15.0 | 14.8 | 14.6 | 14.5 | 14.4 | 14.1 | 13.9 |
| 14.700 | | 13.9 | 13.7 | 13.4 | 13.3 | 11.2 | 9.3 | 9.0 |
| 15.400 | | 8.8 | 8.7 | 8.6 | 8.6 | 8.5 | 8.5 | 8.5 |
| 16.100 | | 8.2 | 8.2 | 8.1 | 8.0 | 8.0 | 8.0 | 7.8 |
| 16.800 | | 7.7 | 7.7 | 7.5 | 7.5 | 7.5 | 7.4 | 7.2 |
| 17.500 | | 7.2 | 7.2 | 7.0 | 6.8 | 6.9 | 6.8 | 6.7 |
| 18.200 | | 6.7 | 6.5 | 6.4 | 6.3 | 6.3 | 6.2 | 6.2 |
| 18.900 | | 6.2 | 5.9 | 5.9 | 5.8 | 5.7 | 5.7 | 5.5 |
| 19.600 | | 5.5 | 5.5 | 5.4 | 5.2 | 5.2 | 5.2 | 4.9 |
| 20.300 | | 4.9 | 4.8 | 4.9 | 4.7 | 4.6 | 4.7 | 4.5 |
| 21.000 | | 4.4 | 4.2 | 4.2 | 4.2 | 4.0 | 4.0 | 3.9 |
| 21.700 | | 3.7 | 3.7 | 3.7 | 3.7 | 3.5 | 3.4 | 3.4 |
| 22.400 | | 3.2 | 3.0 | 3.2 | 3.0 | 2.9 | 2.8 | 2.7 |
| 23.100 | | 2.7 | 2.7 | 2.5 | 2.4 | 2.4 | 2.3 | 2.2 |
| 23.800 | | 2.0 | 2.1 | 2.0 | | | | |
| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Time (hr) | Peak Rate (cfs) | Flow Rate (csm) | |
| OUTLET | 0.136 | | 5.545 | | 12.16 | 477.8 | 3514.56 | |
| Line | Start Time (hr) | Flow Values @ time increment of 0.100 hr | | | | | | |
| | | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 6.300 | | 2.0 | 2.3 | 2.0 | 1.6 | 0.6 | 1.5 | 2.0 |
| 7.000 | | 2.2 | 2.7 | 3.5 | 5.0 | 3.7 | 3.4 | 3.1 |
| 7.700 | | 2.9 | 1.9 | 1.1 | 2.9 | 3.3 | 4.8 | 5.5 |
| 8.400 | | 7.3 | 7.5 | 5.8 | 5.5 | 4.9 | 4.8 | 3.7 |
| 9.100 | | 7.5 | 11.4 | 13.2 | 14.1 | 15.4 | 19.3 | 16.5 |
| 9.800 | | 14.1 | 12.3 | 13.4 | 12.4 | 10.3 | 14.4 | 18.8 |
| 10.500 | | 21.9 | 27.7 | 34.4 | 34.9 | 34.6 | 34.8 | 44.8 |
| 11.200 | | 52.3 | 55.4 | 57.2 | 57.9 | 90.2 | 114.7 | 139.7 |
| 11.900 | | 182.3 | 277.2 | 390.8 | 464.8 | 303.8 | 196.9 | 171.5 |
| 12.600 | | 114.9 | 81.2 | 75.5 | 75.1 | 75.4 | 61.0 | 50.9 |
| 13.300 | | 49.7 | 49.7 | 49.7 | 36.3 | 27.0 | 25.9 | 25.3 |
| 14.000 | | 25.4 | 24.9 | 24.5 | 24.5 | 24.2 | 23.7 | 23.4 |
| 14.700 | | 23.4 | 23.1 | 22.6 | 22.4 | 17.1 | 14.6 | 14.3 |
| 15.400 | | 14.0 | 13.8 | 13.8 | 13.8 | 13.4 | 13.6 | 13.4 |
| 16.100 | | 12.9 | 13.0 | 12.9 | 12.7 | 12.7 | 12.7 | 12.4 |
| 16.800 | | 12.2 | 12.2 | 11.9 | 12.0 | 11.9 | 11.7 | 11.4 |
| 17.500 | | 11.5 | 11.3 | 11.2 | 10.8 | 11.0 | 10.8 | 10.7 |
| 18.200 | | 10.6 | 10.3 | 10.1 | 10.1 | 10.1 | 9.8 | 9.9 |
| 18.900 | | 9.8 | 9.3 | 9.4 | 9.2 | 9.1 | 9.1 | 8.7 |
| 19.600 | | 8.9 | 7.7 | 7.6 | 7.3 | 7.4 | 7.3 | 5.9 |
| 20.300 | | 5.9 | 5.8 | 5.9 | 4.7 | 4.6 | 4.7 | 4.5 |

Unnamed Tributary to Broad Branch

| Line Start Time (hr) | Flow Values @ time increment of 0.100 hr | | | | | | |
|----------------------------|--|-------|-------|-------|-------|-------|-------|
| | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 21.000 | 4.4 | 4.2 | 4.2 | 4.2 | 4.0 | 4.0 | 3.9 |
| 21.700 | 3.7 | 3.7 | 3.7 | 3.7 | 3.5 | 3.4 | 3.4 |
| 22.400 | 3.2 | 3.0 | 3.2 | 3.0 | 2.9 | 2.8 | 2.7 |
| 23.100 | 2.7 | 2.7 | 2.5 | 2.4 | 2.4 | 2.3 | 2.2 |
| 23.800 | 2.0 | 2.1 | 2.0 | 0.2 | | | |

Unnamed Tributary to Broad Branch

| Area or Reach Identifier | Drainage Area (sq mi) | Alternate | Peak Flow by Storm | | | | |
|--------------------------|-----------------------|-----------|--------------------|------------------|------------------|-------------------|-------------------|
| | | | 1_yr_sm (cfs) | 2_yr_sm (cfs) | 5_yr_sm (cfs) | 10_yr_sm (cfs) | 25_yr_sm (cfs) |
| Basin 1 | 0.012 | | 14.2 | 19.7 | 27.2 | 33.2 | 41.2 |
| Basin 2 | 0.004 | | 4.5 | 6.3 | 9.0 | 11.1 | 14.0 |
| Basin 3A | 0.013 | | 20.0 | 26.4 | 34.7 | 41.0 | 49.5 |
| Basin 3B | 0.013 | | 18.3 | 24.6 | 33.1 | 39.5 | 48.2 |
| Basin 4 | 0.065 | | 79.1 | 107.6 | 146.9 | 177.0 | 217.9 |
| Basin 5A | 0.001 | | 1.2 | 1.8 | 2.6 | 3.2 | 4.0 |
| Basin 5B | 0.002 | | 2.4 | 3.5 | 5.0 | 6.2 | 7.8 |
| Basin 5C | 0.001 | | 1.4 | 2.0 | 2.9 | 3.6 | 4.6 |
| Basin 5D | 0.004 | | 4.2 | 6.0 | 8.7 | 10.7 | 13.6 |
| Basin 5E | 0.002 | | 2.1 | 3.0 | 4.3 | 5.4 | 6.8 |
| Basin 5G | 0.003 | | 2.6 | 3.8 | 5.4 | 6.8 | 8.6 |
| Basin 3A1 | 0.200E-03 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Basin 3A2 | 0.200E-03 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Basin 3B1 | 0.006 | | 8.2 | 11.0 | 14.8 | 17.6 | 21.5 |
| Basin 3B2 | 0.002 | | 2.6 | 3.5 | 4.7 | 5.6 | 6.8 |
| Basin 5F1 | 0.003 | | 2.6 | 3.7 | 5.3 | 6.6 | 8.4 |
| Basin 5F2 | 0.002 | | 1.7 | 2.5 | 3.6 | 4.4 | 5.6 |
| Basin 5F3 | 0.002 | | 1.9 | 2.7 | 3.8 | 4.8 | 6.0 |
| Reach 4 | 0.061 | | 79.1 | 107.6 | 146.9 | 177.0 | 217.9 |
| DOWNSTREAM | | | 5.2 | 18.3 | 39.5 | 69.0 | 108.8 |
| Reach 3B | 0.013 | | 18.3 | 24.6 | 33.1 | 39.5 | 48.2 |
| DOWNSTREAM | | | 18.3 | 24.6 | 33.0 | 39.5 | 48.2 |
| CP1 | 0.004 | | 4.5 | 6.3 | 9.0 | 11.1 | 14.0 |
| DOWNSTREAM | | | 4.5 | 6.3 | 9.0 | 11.1 | 14.0 |
| CP2 | 0.001 | | 1.2 | 1.8 | 2.6 | 3.2 | 4.0 |
| DOWNSTREAM | | | 0.0 | 0.0 | 2.4 | 3.2 | 4.0 |
| CP3 | 0.064 | | 7.3 | 21.2 | 43.5 | 77.1 | 119.2 |
| DOWNSTREAM | | | 7.1 | 21.0 | 43.0 | 76.2 | 118.1 |
| CP4 | 0.067 | | 8.4 | 22.9 | 46.0 | 80.4 | 123.6 |
| DOWNSTREAM | | | 8.3 | 22.8 | 45.7 | 79.9 | 123.0 |
| CP7 | 0.078 | | 15.9 | 35.0 | 65.7 | 104.8 | 154.8 |
| DOWNSTREAM | | | 15.7 | 34.8 | 65.3 | 103.7 | 153.9 |
| CP5 | 0.006 | | 4.1 | 6.1 | 10.4 | 13.0 | 16.6 |
| DOWNSTREAM | | | 4.1 | 6.1 | 10.4 | 13.0 | 16.6 |
| CP8 | 0.081 | | 16.9 | 36.6 | 68.0 | 107.3 | 158.7 |
| DOWNSTREAM | | | 16.4 | 34.4 | 52.1 | 82.5 | 156.0 |
| CP6 | 0.004 | | 3.7 | 5.3 | 7.6 | 9.5 | 12.1 |
| DOWNSTREAM | | | 3.7 | 5.3 | 7.6 | 9.5 | 12.1 |
| Reach 5A | 0.001 | | 1.2 | 1.8 | 2.6 | 3.2 | 4.0 |
| DOWNSTREAM | | | 1.2 | 1.8 | 2.6 | 3.2 | 4.0 |
| Reach 5B | 0.063 | | 7.4 | 21.4 | 44.0 | 74.6 | 116.0 |
| DOWNSTREAM | | | 7.3 | 21.2 | 43.5 | 74.0 | 115.3 |
| Reach 5C | 0.001 | | 1.4 | 2.0 | 2.9 | 3.6 | 4.6 |
| DOWNSTREAM | | | 0.0 | 2.0 | 2.9 | 3.6 | 4.5 |
| Reach 5D | 0.006 | | 4.2 | 6.9 | 10.6 | 13.2 | 16.8 |
| DOWNSTREAM | | | 4.1 | 6.1 | 10.4 | 13.0 | 16.6 |
| Reach 5E | 0.002 | | 2.1 | 3.0 | 4.3 | 5.4 | 6.8 |
| DOWNSTREAM | | | 2.1 | 3.0 | 4.3 | 5.3 | 6.8 |
| Reach 5F2 | 0.004 | | 3.7 | 5.4 | 7.7 | 9.6 | 12.2 |
| DOWNSTREAM | | | 3.7 | 5.3 | 7.6 | 9.5 | 12.1 |
| Reach 5G | 0.003 | | 2.6 | 3.8 | 5.4 | 6.8 | 8.6 |

Unnamed Tributary to Broad Branch

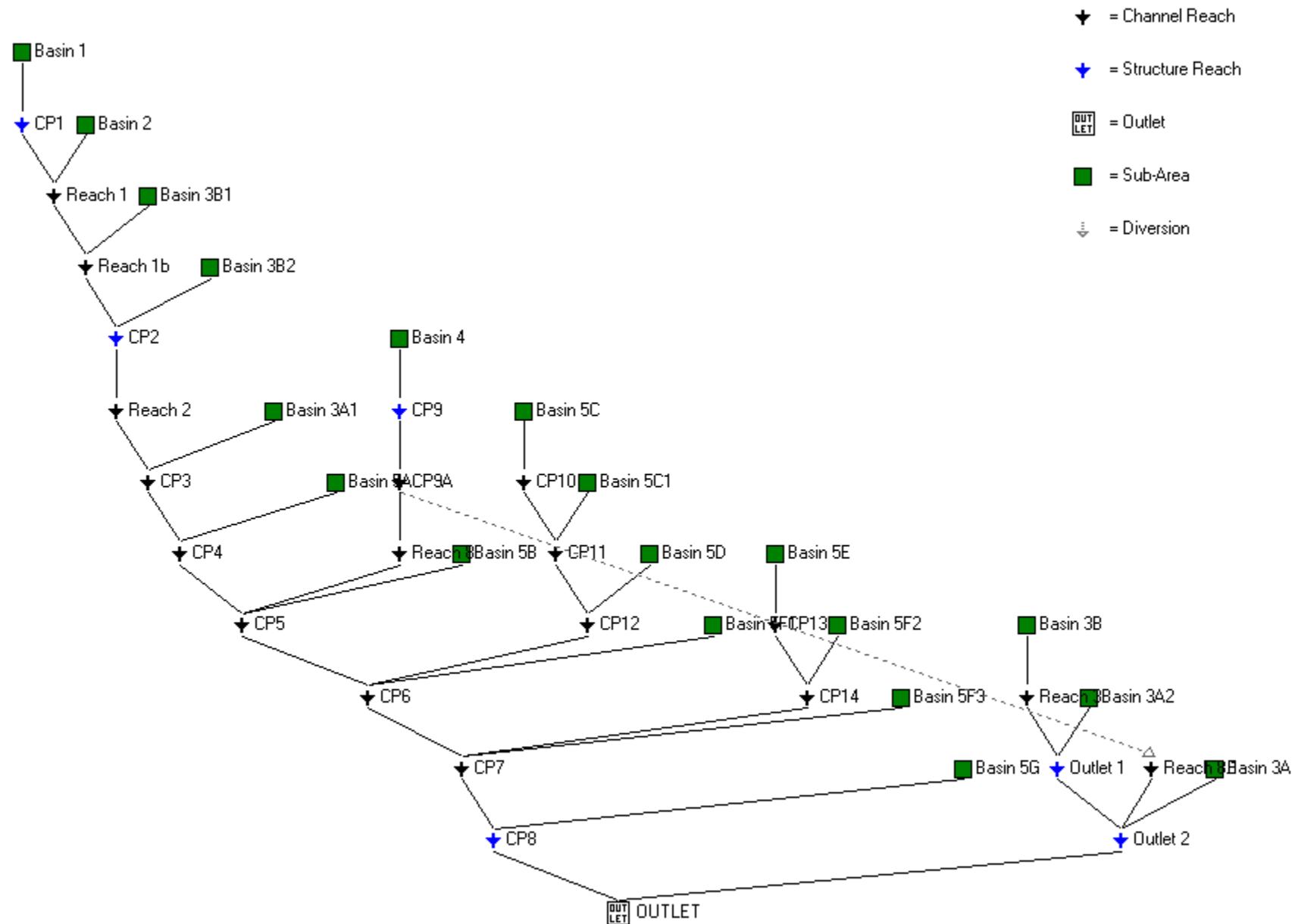
| Area or Reach Identifier | Drainage Area (sq mi) | Alternate | Peak Flow by Storm | | | | |
|--|-----------------------|-----------|--------------------|------------------|------------------|-------------------|-------------------|
| | | | 1_yr_sm (cfs) | 2_yr_sm (cfs) | 5_yr_sm (cfs) | 10_yr_sm (cfs) | 25_yr_sm (cfs) |
| DOWNSTREAM | | | 2.6 | 3.8 | 5.4 | 6.7 | 8.5 |
| Outlet 1 | 0.021 | | 29.0 | 39.1 | 52.4 | 62.7 | 76.5 |
| DOWNSTREAM | | | 29.0 | 39.1 | 52.4 | 62.7 | 76.5 |
| Outlet 2 | 0.039 | | 120.8 | 151.9 | 192.2 | 210.1 | 233.1 |
| DOWNSTREAM | | | 120.8 | 151.9 | 192.2 | 210.1 | 233.1 |
| Reach 4A | 0.004 | | 72.9 | 88.1 | 105.9 | 106.5 | 107.4 |
| DOWNSTREAM | | | 72.9 | 88.1 | 105.9 | 106.5 | 107.4 |
| OUTLET | 0.136 | | 144.9 | 190.7 | 252.8 | 290.3 | 347.0 |
| Area or Reach Identifier | | | | | | | |
| Drainage Area (sq mi) | | | | | | | |
| Peak Flow by Storm | | | | | | | |
| 50_yr_sm (cfs) 100_yr_sm (cfs) (cfs) (cfs) (cfs) | | | | | | | |
| Basin 1 | 0.012 | | 46.8 | 52.9 | | | |
| Basin 2 | 0.004 | | 16.0 | 18.2 | | | |
| Basin 3A | 0.013 | | 55.1 | 61.4 | | | |
| Basin 3B | 0.013 | | 54.2 | 60.7 | | | |
| Basin 4 | 0.065 | | 246.9 | 277.2 | | | |
| Basin 5A | 0.001 | | 4.6 | 5.3 | | | |
| Basin 5B | 0.002 | | 9.0 | 10.2 | | | |
| Basin 5C | 0.001 | | 5.3 | 6.0 | | | |
| Basin 5D | 0.004 | | 15.7 | 17.9 | | | |
| Basin 5E | 0.002 | | 7.8 | 8.9 | | | |
| Basin 5G | 0.003 | | 9.9 | 11.2 | | | |
| Basin 3A1 | 0.200E-03 | | 0.0 | 1.0 | | | |
| Basin 3A2 | 0.200E-03 | | 0.0 | 1.0 | | | |
| Basin 3B1 | 0.006 | | 24.2 | 27.1 | | | |
| Basin 3B2 | 0.002 | | 7.6 | 8.5 | | | |
| Basin 5F1 | 0.003 | | 9.7 | 11.0 | | | |
| Basin 5F2 | 0.002 | | 6.5 | 7.4 | | | |
| Basin 5F3 | 0.002 | | 7.0 | 7.9 | | | |
| Reach 4 | 0.061 | | 246.9 | 277.2 | | | |
| DOWNSTREAM | | | 137.1 | 166.8 | | | |
| Reach 3B | 0.013 | | 54.2 | 60.7 | | | |
| DOWNSTREAM | | | 54.2 | 60.6 | | | |
| CP1 | 0.004 | | 16.0 | 18.2 | | | |
| DOWNSTREAM | | | 16.0 | 18.2 | | | |
| CP2 | 0.001 | | 4.6 | 5.3 | | | |
| DOWNSTREAM | | | 4.6 | 5.3 | | | |
| CP3 | 0.064 | | 149.1 | 180.8 | | | |
| DOWNSTREAM | | | 147.9 | 179.2 | | | |
| CP4 | 0.067 | | 154.3 | 186.9 | | | |
| DOWNSTREAM | | | 153.7 | 186.1 | | | |
| CP7 | 0.078 | | 190.4 | 228.0 | | | |
| DOWNSTREAM | | | 189.4 | 226.8 | | | |
| CP5 | 0.006 | | 19.2 | 22.0 | | | |
| DOWNSTREAM | | | 19.2 | 22.0 | | | |
| CP8 | 0.081 | | 195.2 | 233.7 | | | |
| DOWNSTREAM | | | 194.1 | 232.5 | | | |
| CP6 | 0.004 | | 13.9 | 15.9 | | | |
| DOWNSTREAM | | | 13.9 | 15.9 | | | |

Unnamed Tributary to Broad Branch

| Area or Reach Identifier | Drainage Area (sq mi) | Alternate | Peak Flow by Storm | | | |
|--------------------------------|-----------------------------|-----------|--------------------|--------------------|-------|-------|
| | | | 50_yr_sm (cfs) | 100_yr_sm (cfs) | (cfs) | (cfs) |
| Reach 5A | 0.001 | | 4.6 | 5.3 | | |
| DOWNSTREAM | | | 4.6 | 5.3 | | |
| Reach 5B | 0.063 | | 145.4 | 176.6 | | |
| DOWNSTREAM | | | 144.6 | 175.6 | | |
| Reach 5C | 0.001 | | 5.3 | 6.0 | | |
| DOWNSTREAM | | | 5.2 | 5.9 | | |
| Reach 5D | 0.006 | | 19.4 | 22.2 | | |
| DOWNSTREAM | | | 19.2 | 22.0 | | |
| Reach 5E | 0.002 | | 7.8 | 8.9 | | |
| DOWNSTREAM | | | 7.8 | 8.9 | | |
| Reach 5F2 | 0.004 | | 14.0 | 16.0 | | |
| DOWNSTREAM | | | 13.9 | 15.9 | | |
| Reach 5G | 0.003 | | 9.9 | 11.2 | | |
| DOWNSTREAM | | | 9.8 | 11.2 | | |
| Outlet 1 | 0.021 | | 85.9 | 96.2 | | |
| DOWNSTREAM | | | 85.9 | 96.2 | | |
| Outlet 2 | 0.039 | | 248.6 | 267.7 | | |
| DOWNSTREAM | | | 248.6 | 267.7 | | |
| Reach 4A | 0.004 | | 107.8 | 108.2 | | |
| DOWNSTREAM | | | 107.8 | 108.2 | | |
| OUTLET | 0.136 | | 409.9 | 477.8 | | |



Appendix 3 - Proposed Conditions Hydrology Calculations – TR-20



PROPOSED CONDITIONS TR-20 SCHEMATIC

WinTR-20: Version 1.11 0 0 1. 0
 Unnamed Tributary to Broad Branch

SUB-AREA:

| | | | | |
|-----------|----------|----------|-----|-----|
| Basin 1 | CP1 | 0.012 | 82. | .1 |
| Basin 2 | Reach 1 | 0.00425 | 80. | 0.1 |
| Basin 3A | Outlet 2 | 0.01308 | 87. | .1 |
| Basin 3B | Reach 3B | 0.013223 | 85. | .1 |
| Basin 4 | CP9 | 0.064838 | 84. | .13 |
| Basin 5A | CP4 | .001258 | 79. | 0.1 |
| Basin 5B | CP5 | 0.002431 | 79. | 0.1 |
| Basin 5C | CP10 | 0.001425 | 79. | 0.1 |
| Basin 5D | CP12 | 0.002811 | 79. | 0.1 |
| Basin 5E | CP13 | 0.002114 | 79. | 0.1 |
| Basin 5G | CP8 | 0.002667 | 79. | 0.1 |
| Basin 3A1 | CP3 | 0.00020 | 98. | .1 |
| Basin 3A2 | Outlet 1 | .0002 | 98. | .1 |
| Basin 3B1 | Reach 1b | .005901 | 85. | .1 |
| Basin 3B2 | CP2 | .001861 | 85. | .1 |
| Basin 5F1 | CP6 | .002613 | 79. | 0.1 |
| Basin 5F2 | CP14 | .001752 | 79. | .1 |
| Basin 5F3 | CP7 | .001881 | 79. | .1 |
| Basin 5C1 | CP11 | 0.001435 | 79. | 0.1 |

STREAM REACH:

| | | | | |
|-----------|----------|-------------------------------|--------------|----------|
| Reach 3B | Outlet 1 | Step_Pool | 50. | 50. |
| CP1 | Reach 1 | 36th St | 1. | 1. |
| CP2 | Reach 2 | Linnean | 1. | 1. |
| CP3 | CP4 | Pond | 220. | 220. |
| CP4 | CP5 | Step_Pool | 230. | 230. |
| CP7 | CP8 | Main_DS | 280. | 280. |
| CP5 | CP6 | Main_DS | 315. | 315. |
| CP8 | OUTLET | | BroadBrnch5. | 5. |
| CP6 | CP7 | Main_DS | 105. | 105. |
| Outlet 1 | Outlet 2 | Box | 100. | |
| Outlet 2 | OUTLET | Box | 200. | |
| CP9 | CP9A | | TribD_Linn1. | 1. |
| CP10 | CP11 | Step_Pool | 220. | 220. |
| CP12 | CP6 | Step_Pool | 70. | 70. |
| CP13 | CP14 | Step_Pool | 200. | 200. |
| CP14 | CP7 | Step_Pool | 45. | 45. |
| Reach 8.1 | Outlet 2 | Culvert_2 | 10. | 10. |
| Reach 1 | Reach 1b | Main_US | 405. | 405. |
| CP11 | CP12 | Step_Pool | 390. | 390. |
| Reach 2 | CP3 | Culvert_1 | 100. | 100. |
| Reach 8 | CP5 | Ditch | 330. | 330. |
| CP9A | Reach 8 | Linnean_Rd | 1. | 1. |
| | | SPLIT FLOWReach 8.1 Culvert_2 | | 0.064838 |
| Reach 1b | CP2 | Main_US | 145. | 145. |

STORM ANALYSIS:

| | | | | | |
|-----------|--|------|-----------|---|------|
| 1_yr_sm | | 2.60 | 1_yr_sm | 2 | 3.14 |
| 2_yr_sm | | 3.14 | 2_yr_sm | 2 | |
| 5_yr_sm | | 4.04 | 5_yr_sm | 2 | |
| 10_yr_sm | | 4.83 | 10_yr_sm | 2 | |
| 25_yr_sm | | 6.04 | 25_yr_sm | 2 | |
| 50_yr_sm | | 7.12 | 50_yr_sm | 2 | |
| 100_yr_sm | | 8.33 | 100_yr_sm | 2 | |

STREAM CROSS SECTION:

| | | | | |
|------------|--------|--------|------|-------|
| Linnean_Rd | 216.00 | 215.50 | | |
| | 215.50 | 0.0 | 0.0 | 0.005 |
| | 216.00 | 27.12 | 14. | 31. |
| | 217.00 | 166.66 | 42. | 37. |
| | 218.00 | 366.35 | 70. | 43. |
| Culvert_2 | 215.0 | 212.0 | | |
| | 212.0 | 0. | 0. | .17 |
| | 212.5 | 5.49 | 9. | 8.5 |
| | 213.0 | 16.89 | 9.01 | 8.6 |
| | 214.0 | 52.89 | 9.02 | 8.7 |
| | 215.0 | 97.76 | 9.03 | 8.8 |
| | 215.5 | 123.19 | 9.04 | 8.9 |
| | 216.0 | 123.20 | 9.05 | 9.0 |
| | 217.0 | 123.21 | 9.06 | 9.1 |

| | | | | |
|-----------|-------|--------|------|-------|
| | 218.0 | 123.22 | 9.07 | 9.2 |
| Step_Pool | 206.9 | 206. | 0. | .07 |
| | 206. | 0. | 0. | |
| | 206.9 | 30.5 | 7.3 | 18.3 |
| | 207.1 | 42.1 | 11.4 | 25.5 |
| | 207.3 | 58. | 16. | 32. |
| | 207.4 | 70.5 | 20. | 36. |
| | 207.5 | 87.3 | 25. | 40. |
| | 207.7 | 113. | 31. | 44. |
| Pond | 210.6 | 207.3 | | |
| | 207.3 | 0. | 0. | .005 |
| | 210.3 | 30.5 | 86. | 63. |
| | 210.6 | 42. | 104. | 66. |
| | 211.1 | 70. | 142. | 73. |
| | 211.4 | 87. | 162. | 76. |
| | 211.8 | 113. | 189. | 81. |
| Culvert_1 | 214. | 212. | | |
| | 212. | 0. | 0. | .0022 |
| | 213.8 | 29.4 | 3.5 | 3. |
| | 214. | 40.4 | 5. | 3.1 |
| | 216.4 | 55.6 | 7. | 3.2 |
| | 217.6 | 67.5 | 7.1 | 3.3 |
| | 219.5 | 83.5 | 7.2 | 3.4 |
| | 220. | 94.6 | 20. | 160. |
| | 220.1 | 107. | 30. | 160.1 |
| Ditch | 211.5 | 210. | | |
| | 210. | 0. | 0. | .007 |
| | 210.8 | 10. | 4.5 | 7.2 |
| | 211.2 | 20. | 7.4 | 8.6 |
| | 211.9 | 50. | 14.3 | 11.4 |
| | 212.6 | 100. | 23.9 | 11.8 |
| | 213.6 | 200. | 40. | 15.1 |
| Main_DS | 194.5 | 193.2 | | |
| | 193.2 | 0. | 0. | .0455 |
| | 194.4 | 33.5 | 9.3 | 12.9 |
| | 194.6 | 47.5 | 11.9 | 14.4 |
| | 194.9 | 85. | 18.1 | 17.5 |
| | 195.3 | 129. | 25.6 | 21.6 |
| | 195.8 | 188. | 35.8 | 26.2 |
| | 196. | 230. | 42.4 | 28.9 |
| | 196.2 | 275. | 49.4 | 30. |
| Main_US | 215.7 | 211.5 | | |
| | 211.5 | 0. | 0. | .01 |
| | 215.6 | 29.4 | 56. | 24. |
| | 215.7 | 40. | 59. | 25. |
| | 216.5 | 56. | 81. | 30. |
| | 217.6 | 68. | 119. | 36. |
| | 219.5 | 84. | 200. | 48. |
| | 220. | 95. | 226. | 51. |

STRUCTURE RATING:

| | | | |
|------------|--------|---------|-----------|
| Box | 209.74 | | |
| | 209.74 | 0. | 0. |
| | 210. | 17.94 | .00000078 |
| | 212. | 531.88 | .0005863 |
| | 214. | 1300.76 | .0020831 |
| | 216. | 2168.64 | .0044981 |
| | 217. | 2623.15 | .00605 |
| TribD_Linn | 212.00 | 0.00 | 0.00 |
| | 212.50 | 7.75 | 0.01 |
| | 213.00 | 23.84 | 0.02 |
| | 214.00 | 74.67 | 0.06 |
| | 215.00 | 109.15 | 0.13 |
| | 215.50 | 122.04 | 0.18 |
| | 216.00 | 150.25 | 0.24 |
| | 217.00 | 289.79 | 0.39 |
| | 218.00 | 489.48 | 0.57 |
| Linnean | 212. | | |
| | 212. | 0. | 0. |
| | 212.75 | 38. | .05 |
| | 213.5 | 48. | .12 |
| | 215. | 63. | .33 |
| | 219.5 | 96. | 1.44 |
| | 227. | 134. | 4.95 |
| 36th St | 215.5 | | |
| | 215.5 | 0. | 0. |
| | 216. | 1.3 | 0.0001 |

| | | |
|----------------|--------|-------|
| 217. | 24.5 | .0016 |
| 218. | 91.68 | .0071 |
| 219. | 221.36 | .0264 |
| BroadBrnch185. | | |
| 185. | 0. | 0. |
| 185.5 | 10. | .0015 |
| 186. | 15. | .0072 |
| 186.5 | 20. | .0115 |
| 187. | 30. | .0244 |
| 187.5 | 40. | .0359 |
| 188. | 48. | .0564 |
| 188.5 | 55. | .09 |
| 189. | 65. | .1319 |
| 189.5 | 70. | .1833 |
| 190. | 75. | .2456 |
| 190.5 | 80. | .3182 |
| 191. | 92. | .4007 |
| 191.5 | 139. | .4978 |
| 192. | 323. | .6057 |
| 192.5 | 500. | .7153 |
| 192.76 | 600. | .7729 |

RAINFALL DISTRIBUTION:

| 1_yr_sm | 0.1 | | | | |
|---------|----------|----------|----------|----------|--|
| 0.0 | 0.000377 | 0.000775 | 0.0012 | 0.0016 | |
| 0.0021 | 0.0026 | 0.0031 | 0.0036 | 0.0042 | |
| 0.0047 | 0.0053 | 0.0060 | 0.0066 | 0.0073 | |
| 0.0079 | 0.0086 | 0.0094 | 0.0101 | 0.0109 | |
| 0.0117 | 0.0125 | 0.0133 | 0.0142 | 0.0150 | |
| 0.0159 | 0.0169 | 0.0178 | 0.0188 | 0.0198 | |
| 0.0208 | 0.0218 | 0.0228 | 0.0239 | 0.0250 | |
| 0.0261 | 0.0273 | 0.0284 | 0.0296 | 0.0308 | |
| 0.0320 | 0.0333 | 0.0345 | 0.0358 | 0.0371 | |
| 0.0385 | 0.0398 | 0.0412 | 0.0426 | 0.0440 | |
| 0.0455 | 0.0469 | 0.0484 | 0.0499 | 0.0515 | |
| 0.0530 | 0.0546 | 0.0562 | 0.0578 | 0.0594 | |
| 0.0611 | 0.0628 | 0.0645 | 0.0662 | 0.0680 | |
| 0.0697 | 0.0715 | 0.0733 | 0.0752 | 0.0770 | |
| 0.0789 | 0.0808 | 0.0827 | 0.0847 | 0.0866 | |
| 0.0886 | 0.0906 | 0.0927 | 0.0947 | 0.0968 | |
| 0.0989 | 0.1010 | 0.1031 | 0.1053 | 0.1075 | |
| 0.1097 | 0.1119 | 0.1142 | 0.1164 | 0.1187 | |
| 0.1210 | 0.1245 | 0.1281 | 0.1317 | 0.1353 | |
| 0.1390 | 0.1428 | 0.1465 | 0.1504 | 0.1543 | |
| 0.1582 | 0.1622 | 0.1662 | 0.1703 | 0.1744 | |
| 0.1785 | 0.1859 | 0.1933 | 0.2006 | 0.2080 | |
| 0.2153 | 0.2261 | 0.2369 | 0.2477 | 0.2585 | |
| 0.2692 | 0.2902 | 0.3112 | 0.3401 | 0.3839 | |
| 0.4663 | 0.6161 | 0.6599 | 0.6888 | 0.7098 | |
| 0.7308 | 0.7415 | 0.7523 | 0.7631 | 0.7739 | |
| 0.7847 | 0.7920 | 0.7994 | 0.8067 | 0.8141 | |
| 0.8215 | 0.8256 | 0.8297 | 0.8338 | 0.8378 | |
| 0.8418 | 0.8457 | 0.8496 | 0.8535 | 0.8572 | |
| 0.8610 | 0.8647 | 0.8683 | 0.8719 | 0.8755 | |
| 0.8790 | 0.8813 | 0.8836 | 0.8858 | 0.8881 | |
| 0.8903 | 0.8925 | 0.8947 | 0.8969 | 0.8990 | |
| 0.9011 | 0.9032 | 0.9053 | 0.9073 | 0.9094 | |
| 0.9114 | 0.9134 | 0.9153 | 0.9173 | 0.9192 | |
| 0.9211 | 0.9230 | 0.9248 | 0.9267 | 0.9285 | |
| 0.9303 | 0.9320 | 0.9338 | 0.9355 | 0.9372 | |
| 0.9389 | 0.9406 | 0.9422 | 0.9438 | 0.9454 | |
| 0.9470 | 0.9485 | 0.9501 | 0.9516 | 0.9531 | |
| 0.9545 | 0.9560 | 0.9574 | 0.9588 | 0.9602 | |
| 0.9615 | 0.9629 | 0.9642 | 0.9655 | 0.9667 | |
| 0.9680 | 0.9692 | 0.9704 | 0.9716 | 0.9727 | |
| 0.9739 | 0.9750 | 0.9761 | 0.9772 | 0.9782 | |
| 0.9792 | 0.9802 | 0.9812 | 0.9822 | 0.9831 | |
| 0.9841 | 0.9850 | 0.9858 | 0.9867 | 0.9875 | |
| 0.9883 | 0.9891 | 0.9899 | 0.9906 | 0.9914 | |
| 0.9921 | 0.9927 | 0.9934 | 0.9940 | 0.9947 | |
| 0.9953 | 0.9958 | 0.9964 | 0.9969 | 0.9974 | |
| 0.9979 | 0.9984 | 0.9988 | 0.999225 | 0.999623 | |
| 1.0 | | | | | |
| 2_yr_sm | 0.1 | | | | |
| 0.0 | 0.000339 | 0.000700 | 0.0011 | 0.0015 | |
| 0.0019 | 0.0024 | 0.0028 | 0.0033 | 0.0038 | |

| | | | | |
|---------|----------|----------|----------|----------|
| 0.0044 | 0.0049 | 0.0055 | 0.0061 | 0.0067 |
| 0.0073 | 0.0080 | 0.0087 | 0.0094 | 0.0101 |
| 0.0109 | 0.0116 | 0.0124 | 0.0132 | 0.0141 |
| 0.0149 | 0.0158 | 0.0167 | 0.0176 | 0.0186 |
| 0.0195 | 0.0205 | 0.0215 | 0.0226 | 0.0236 |
| 0.0247 | 0.0258 | 0.0269 | 0.0280 | 0.0292 |
| 0.0304 | 0.0316 | 0.0328 | 0.0340 | 0.0353 |
| 0.0366 | 0.0379 | 0.0392 | 0.0406 | 0.0419 |
| 0.0433 | 0.0447 | 0.0462 | 0.0476 | 0.0491 |
| 0.0506 | 0.0521 | 0.0537 | 0.0553 | 0.0568 |
| 0.0584 | 0.0601 | 0.0617 | 0.0634 | 0.0651 |
| 0.0668 | 0.0686 | 0.0703 | 0.0721 | 0.0739 |
| 0.0757 | 0.0776 | 0.0794 | 0.0813 | 0.0832 |
| 0.0852 | 0.0871 | 0.0891 | 0.0911 | 0.0931 |
| 0.0952 | 0.0972 | 0.0993 | 0.1014 | 0.1035 |
| 0.1057 | 0.1078 | 0.1100 | 0.1122 | 0.1145 |
| 0.1167 | 0.1202 | 0.1237 | 0.1273 | 0.1309 |
| 0.1345 | 0.1383 | 0.1420 | 0.1458 | 0.1497 |
| 0.1535 | 0.1575 | 0.1615 | 0.1655 | 0.1696 |
| 0.1737 | 0.1812 | 0.1886 | 0.1960 | 0.2035 |
| 0.2109 | 0.2219 | 0.2329 | 0.2439 | 0.2549 |
| 0.2659 | 0.2877 | 0.3094 | 0.3392 | 0.3839 |
| 0.4670 | 0.6161 | 0.6608 | 0.6906 | 0.7123 |
| 0.7341 | 0.7451 | 0.7561 | 0.7671 | 0.7781 |
| 0.7891 | 0.7965 | 0.8040 | 0.8114 | 0.8188 |
| 0.8263 | 0.8304 | 0.8345 | 0.8385 | 0.8425 |
| 0.8465 | 0.8503 | 0.8542 | 0.8580 | 0.8617 |
| 0.8655 | 0.8691 | 0.8727 | 0.8763 | 0.8798 |
| 0.8833 | 0.8855 | 0.8878 | 0.8900 | 0.8922 |
| 0.8943 | 0.8965 | 0.8986 | 0.9007 | 0.9028 |
| 0.9048 | 0.9069 | 0.9089 | 0.9109 | 0.9129 |
| 0.9148 | 0.9168 | 0.9187 | 0.9206 | 0.9224 |
| 0.9243 | 0.9261 | 0.9279 | 0.9297 | 0.9314 |
| 0.9332 | 0.9349 | 0.9366 | 0.9383 | 0.9399 |
| 0.9416 | 0.9432 | 0.9447 | 0.9463 | 0.9479 |
| 0.9494 | 0.9509 | 0.9524 | 0.9538 | 0.9553 |
| 0.9567 | 0.9581 | 0.9594 | 0.9608 | 0.9621 |
| 0.9634 | 0.9647 | 0.9660 | 0.9672 | 0.9684 |
| 0.9696 | 0.9708 | 0.9720 | 0.9731 | 0.9742 |
| 0.9753 | 0.9764 | 0.9774 | 0.9785 | 0.9795 |
| 0.9805 | 0.9814 | 0.9824 | 0.9833 | 0.9842 |
| 0.9851 | 0.9859 | 0.9868 | 0.9876 | 0.9884 |
| 0.9891 | 0.9899 | 0.9906 | 0.9913 | 0.9920 |
| 0.9927 | 0.9933 | 0.9939 | 0.9945 | 0.9951 |
| 0.9956 | 0.9962 | 0.9967 | 0.9972 | 0.9976 |
| 0.9981 | 0.9985 | 0.9989 | 0.999300 | 0.999661 |
| 1.0 | | | | |
| 5_yr_sm | 0.1 | | | |
| 0.0 | 0.000336 | 0.000693 | 0.0011 | 0.0015 |
| 0.0019 | 0.0023 | 0.0028 | 0.0033 | 0.0038 |
| 0.0043 | 0.0049 | 0.0055 | 0.0061 | 0.0067 |
| 0.0073 | 0.0080 | 0.0087 | 0.0094 | 0.0101 |
| 0.0109 | 0.0117 | 0.0124 | 0.0133 | 0.0141 |
| 0.0150 | 0.0158 | 0.0168 | 0.0177 | 0.0186 |
| 0.0196 | 0.0206 | 0.0216 | 0.0226 | 0.0237 |
| 0.0248 | 0.0259 | 0.0270 | 0.0282 | 0.0293 |
| 0.0305 | 0.0317 | 0.0330 | 0.0342 | 0.0355 |
| 0.0368 | 0.0381 | 0.0395 | 0.0408 | 0.0422 |
| 0.0436 | 0.0451 | 0.0465 | 0.0480 | 0.0495 |
| 0.0510 | 0.0525 | 0.0541 | 0.0557 | 0.0573 |
| 0.0589 | 0.0606 | 0.0622 | 0.0639 | 0.0657 |
| 0.0674 | 0.0692 | 0.0709 | 0.0727 | 0.0746 |
| 0.0764 | 0.0783 | 0.0802 | 0.0821 | 0.0840 |
| 0.0860 | 0.0880 | 0.0900 | 0.0920 | 0.0940 |
| 0.0961 | 0.0982 | 0.1003 | 0.1024 | 0.1046 |
| 0.1068 | 0.1089 | 0.1112 | 0.1134 | 0.1157 |
| 0.1180 | 0.1215 | 0.1251 | 0.1287 | 0.1324 |
| 0.1361 | 0.1399 | 0.1437 | 0.1476 | 0.1515 |
| 0.1555 | 0.1595 | 0.1636 | 0.1677 | 0.1719 |
| 0.1761 | 0.1837 | 0.1914 | 0.1990 | 0.2066 |
| 0.2143 | 0.2256 | 0.2370 | 0.2483 | 0.2597 |
| 0.2710 | 0.2936 | 0.3162 | 0.3464 | 0.3909 |
| 0.4707 | 0.6091 | 0.6536 | 0.6838 | 0.7064 |
| 0.7290 | 0.7403 | 0.7517 | 0.7630 | 0.7744 |
| 0.7857 | 0.7934 | 0.8010 | 0.8086 | 0.8163 |
| 0.8239 | 0.8281 | 0.8323 | 0.8364 | 0.8405 |
| 0.8445 | 0.8485 | 0.8524 | 0.8563 | 0.8601 |
| 0.8639 | 0.8676 | 0.8713 | 0.8749 | 0.8785 |

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|----------|--------|----------|----------|----------|----------|
| | 0.8820 | 0.8843 | 0.8866 | 0.8888 | 0.8911 |
| | 0.8932 | 0.8954 | 0.8976 | 0.8997 | 0.9018 |
| | 0.9039 | 0.9060 | 0.9080 | 0.9100 | 0.9120 |
| | 0.9140 | 0.9160 | 0.9179 | 0.9198 | 0.9217 |
| | 0.9236 | 0.9254 | 0.9273 | 0.9291 | 0.9308 |
| | 0.9326 | 0.9343 | 0.9361 | 0.9378 | 0.9394 |
| | 0.9411 | 0.9427 | 0.9443 | 0.9459 | 0.9475 |
| | 0.9490 | 0.9505 | 0.9520 | 0.9535 | 0.9549 |
| | 0.9564 | 0.9578 | 0.9592 | 0.9605 | 0.9619 |
| | 0.9632 | 0.9645 | 0.9658 | 0.9670 | 0.9683 |
| | 0.9695 | 0.9707 | 0.9718 | 0.9730 | 0.9741 |
| | 0.9752 | 0.9763 | 0.9774 | 0.9784 | 0.9794 |
| | 0.9804 | 0.9814 | 0.9823 | 0.9832 | 0.9842 |
| | 0.9850 | 0.9859 | 0.9867 | 0.9876 | 0.9883 |
| | 0.9891 | 0.9899 | 0.9906 | 0.9913 | 0.9920 |
| | 0.9927 | 0.9933 | 0.9939 | 0.9945 | 0.9951 |
| | 0.9957 | 0.9962 | 0.9967 | 0.9972 | 0.9977 |
| | 0.9981 | 0.9985 | 0.9989 | 0.999307 | 0.999664 |
| | 1.0 | | | | |
| 10_yr_sm | | 0.1 | | | |
| | 0.0 | 0.000365 | 0.000753 | 0.0012 | 0.0016 |
| | 0.0021 | 0.0025 | 0.0030 | 0.0035 | 0.0041 |
| | 0.0047 | 0.0053 | 0.0059 | 0.0065 | 0.0072 |
| | 0.0078 | 0.0085 | 0.0093 | 0.0100 | 0.0108 |
| | 0.0116 | 0.0124 | 0.0132 | 0.0141 | 0.0150 |
| | 0.0159 | 0.0168 | 0.0177 | 0.0187 | 0.0197 |
| | 0.0207 | 0.0218 | 0.0228 | 0.0239 | 0.0250 |
| | 0.0261 | 0.0273 | 0.0285 | 0.0296 | 0.0309 |
| | 0.0321 | 0.0334 | 0.0347 | 0.0360 | 0.0373 |
| | 0.0386 | 0.0400 | 0.0414 | 0.0428 | 0.0443 |
| | 0.0457 | 0.0472 | 0.0487 | 0.0503 | 0.0518 |
| | 0.0534 | 0.0550 | 0.0566 | 0.0583 | 0.0599 |
| | 0.0616 | 0.0633 | 0.0651 | 0.0668 | 0.0686 |
| | 0.0704 | 0.0722 | 0.0741 | 0.0759 | 0.0778 |
| | 0.0797 | 0.0817 | 0.0836 | 0.0856 | 0.0876 |
| | 0.0896 | 0.0917 | 0.0938 | 0.0959 | 0.0980 |
| | 0.1001 | 0.1023 | 0.1045 | 0.1067 | 0.1089 |
| | 0.1111 | 0.1134 | 0.1157 | 0.1180 | 0.1204 |
| | 0.1227 | 0.1263 | 0.1300 | 0.1337 | 0.1375 |
| | 0.1413 | 0.1452 | 0.1491 | 0.1531 | 0.1571 |
| | 0.1612 | 0.1653 | 0.1695 | 0.1737 | 0.1780 |
| | 0.1823 | 0.1901 | 0.1979 | 0.2056 | 0.2134 |
| | 0.2211 | 0.2326 | 0.2441 | 0.2555 | 0.2670 |
| | 0.2785 | 0.3010 | 0.3235 | 0.3534 | 0.3969 |
| | 0.4733 | 0.6031 | 0.6466 | 0.6765 | 0.6990 |
| | 0.7215 | 0.7330 | 0.7445 | 0.7559 | 0.7674 |
| | 0.7789 | 0.7866 | 0.7944 | 0.8021 | 0.8099 |
| | 0.8177 | 0.8220 | 0.8263 | 0.8305 | 0.8347 |
| | 0.8388 | 0.8429 | 0.8469 | 0.8509 | 0.8548 |
| | 0.8587 | 0.8625 | 0.8663 | 0.8700 | 0.8737 |
| | 0.8773 | 0.8796 | 0.8820 | 0.8843 | 0.8866 |
| | 0.8889 | 0.8911 | 0.8933 | 0.8955 | 0.8977 |
| | 0.8999 | 0.9020 | 0.9041 | 0.9062 | 0.9083 |
| | 0.9104 | 0.9124 | 0.9144 | 0.9164 | 0.9183 |
| | 0.9203 | 0.9222 | 0.9241 | 0.9259 | 0.9278 |
| | 0.9296 | 0.9314 | 0.9332 | 0.9349 | 0.9367 |
| | 0.9384 | 0.9401 | 0.9417 | 0.9434 | 0.9450 |
| | 0.9466 | 0.9482 | 0.9497 | 0.9513 | 0.9528 |
| | 0.9543 | 0.9557 | 0.9572 | 0.9586 | 0.9600 |
| | 0.9614 | 0.9627 | 0.9640 | 0.9653 | 0.9666 |
| | 0.9679 | 0.9691 | 0.9704 | 0.9715 | 0.9727 |
| | 0.9739 | 0.9750 | 0.9761 | 0.9772 | 0.9782 |
| | 0.9793 | 0.9803 | 0.9813 | 0.9823 | 0.9832 |
| | 0.9841 | 0.9850 | 0.9859 | 0.9868 | 0.9876 |
| | 0.9884 | 0.9892 | 0.9900 | 0.9907 | 0.9915 |
| | 0.9922 | 0.9928 | 0.9935 | 0.9941 | 0.9947 |
| | 0.9953 | 0.9959 | 0.9965 | 0.9970 | 0.9975 |
| | 0.9979 | 0.9984 | 0.9988 | 0.999247 | 0.999635 |
| | 1.0 | | | | |
| 25_yr_sm | | 0.1 | | | |
| | 0.0 | 0.000439 | 0.000902 | 0.0014 | 0.0019 |
| | 0.0024 | 0.0030 | 0.0036 | 0.0042 | 0.0048 |
| | 0.0054 | 0.0061 | 0.0068 | 0.0075 | 0.0083 |
| | 0.0090 | 0.0098 | 0.0106 | 0.0114 | 0.0123 |
| | 0.0132 | 0.0141 | 0.0150 | 0.0159 | 0.0169 |
| | 0.0179 | 0.0189 | 0.0200 | 0.0210 | 0.0221 |
| | 0.0232 | 0.0244 | 0.0255 | 0.0267 | 0.0279 |
| | 0.0291 | 0.0304 | 0.0316 | 0.0329 | 0.0343 |

| | | | | |
|--------|--------|--------|----------|----------|
| 0.0356 | 0.0370 | 0.0383 | 0.0398 | 0.0412 |
| 0.0426 | 0.0441 | 0.0456 | 0.0471 | 0.0487 |
| 0.0503 | 0.0519 | 0.0535 | 0.0551 | 0.0568 |
| 0.0585 | 0.0602 | 0.0619 | 0.0637 | 0.0655 |
| 0.0673 | 0.0691 | 0.0709 | 0.0728 | 0.0747 |
| 0.0766 | 0.0786 | 0.0805 | 0.0825 | 0.0845 |
| 0.0866 | 0.0886 | 0.0907 | 0.0928 | 0.0949 |
| 0.0971 | 0.0992 | 0.1014 | 0.1037 | 0.1059 |
| 0.1082 | 0.1104 | 0.1128 | 0.1151 | 0.1174 |
| 0.1198 | 0.1222 | 0.1247 | 0.1271 | 0.1296 |
| 0.1321 | 0.1358 | 0.1397 | 0.1435 | 0.1475 |
| 0.1514 | 0.1554 | 0.1595 | 0.1636 | 0.1678 |
| 0.1720 | 0.1763 | 0.1806 | 0.1850 | 0.1894 |
| 0.1939 | 0.2018 | 0.2096 | 0.2175 | 0.2253 |
| 0.2332 | 0.2447 | 0.2562 | 0.2676 | 0.2791 |
| 0.2906 | 0.3126 | 0.3346 | 0.3634 | 0.4049 |
| 0.4762 | 0.5951 | 0.6366 | 0.6654 | 0.6874 |
| 0.7094 | 0.7209 | 0.7324 | 0.7438 | 0.7553 |
| 0.7668 | 0.7747 | 0.7825 | 0.7904 | 0.7982 |
| 0.8061 | 0.8106 | 0.8150 | 0.8194 | 0.8237 |
| 0.8280 | 0.8322 | 0.8364 | 0.8405 | 0.8446 |
| 0.8486 | 0.8525 | 0.8565 | 0.8603 | 0.8642 |
| 0.8679 | 0.8704 | 0.8729 | 0.8753 | 0.8778 |
| 0.8802 | 0.8826 | 0.8849 | 0.8872 | 0.8896 |
| 0.8918 | 0.8941 | 0.8963 | 0.8986 | 0.9008 |
| 0.9029 | 0.9051 | 0.9072 | 0.9093 | 0.9114 |
| 0.9134 | 0.9155 | 0.9175 | 0.9195 | 0.9214 |
| 0.9234 | 0.9253 | 0.9272 | 0.9291 | 0.9309 |
| 0.9327 | 0.9345 | 0.9363 | 0.9381 | 0.9398 |
| 0.9415 | 0.9432 | 0.9449 | 0.9465 | 0.9481 |
| 0.9497 | 0.9513 | 0.9529 | 0.9544 | 0.9559 |
| 0.9574 | 0.9588 | 0.9602 | 0.9617 | 0.9630 |
| 0.9644 | 0.9657 | 0.9671 | 0.9684 | 0.9696 |
| 0.9709 | 0.9721 | 0.9733 | 0.9745 | 0.9756 |
| 0.9768 | 0.9779 | 0.9790 | 0.9800 | 0.9811 |
| 0.9821 | 0.9831 | 0.9841 | 0.9850 | 0.9859 |
| 0.9868 | 0.9877 | 0.9886 | 0.9894 | 0.9902 |
| 0.9910 | 0.9917 | 0.9925 | 0.9932 | 0.9939 |
| 0.9946 | 0.9952 | 0.9958 | 0.9964 | 0.9970 |
| 0.9976 | 0.9981 | 0.9986 | 0.999098 | 0.999561 |

1.0

50_yr_sm

| | 0.1 | | | |
|--------|----------|----------|--------|--------|
| 0.0 | 0.000485 | 0.000994 | 0.0015 | 0.0021 |
| 0.0027 | 0.0033 | 0.0039 | 0.0045 | 0.0052 |
| 0.0059 | 0.0066 | 0.0074 | 0.0082 | 0.0089 |
| 0.0098 | 0.0106 | 0.0115 | 0.0124 | 0.0133 |
| 0.0142 | 0.0152 | 0.0161 | 0.0172 | 0.0182 |
| 0.0192 | 0.0203 | 0.0214 | 0.0225 | 0.0237 |
| 0.0249 | 0.0261 | 0.0273 | 0.0285 | 0.0298 |
| 0.0311 | 0.0324 | 0.0337 | 0.0351 | 0.0365 |
| 0.0379 | 0.0393 | 0.0408 | 0.0422 | 0.0437 |
| 0.0453 | 0.0468 | 0.0484 | 0.0500 | 0.0516 |
| 0.0533 | 0.0549 | 0.0566 | 0.0583 | 0.0601 |
| 0.0618 | 0.0636 | 0.0654 | 0.0673 | 0.0691 |
| 0.0710 | 0.0729 | 0.0749 | 0.0768 | 0.0788 |
| 0.0808 | 0.0828 | 0.0849 | 0.0869 | 0.0890 |
| 0.0911 | 0.0933 | 0.0955 | 0.0976 | 0.0999 |
| 0.1021 | 0.1044 | 0.1066 | 0.1089 | 0.1113 |
| 0.1136 | 0.1160 | 0.1184 | 0.1208 | 0.1233 |
| 0.1258 | 0.1283 | 0.1308 | 0.1333 | 0.1359 |
| 0.1385 | 0.1424 | 0.1463 | 0.1503 | 0.1543 |
| 0.1584 | 0.1625 | 0.1667 | 0.1710 | 0.1752 |
| 0.1796 | 0.1840 | 0.1884 | 0.1929 | 0.1975 |
| 0.2021 | 0.2101 | 0.2180 | 0.2260 | 0.2340 |
| 0.2420 | 0.2536 | 0.2651 | 0.2767 | 0.2883 |
| 0.2999 | 0.3217 | 0.3436 | 0.3720 | 0.4119 |
| 0.4790 | 0.5881 | 0.6280 | 0.6564 | 0.6783 |
| 0.7001 | 0.7117 | 0.7233 | 0.7349 | 0.7464 |
| 0.7580 | 0.7660 | 0.7740 | 0.7820 | 0.7899 |
| 0.7979 | 0.8025 | 0.8071 | 0.8116 | 0.8160 |
| 0.8204 | 0.8248 | 0.8290 | 0.8333 | 0.8375 |
| 0.8416 | 0.8457 | 0.8497 | 0.8537 | 0.8576 |
| 0.8615 | 0.8641 | 0.8667 | 0.8692 | 0.8717 |
| 0.8742 | 0.8767 | 0.8792 | 0.8816 | 0.8840 |
| 0.8864 | 0.8887 | 0.8911 | 0.8934 | 0.8956 |
| 0.8979 | 0.9001 | 0.9024 | 0.9045 | 0.9067 |
| 0.9089 | 0.9110 | 0.9131 | 0.9151 | 0.9172 |
| 0.9192 | 0.9212 | 0.9232 | 0.9251 | 0.9271 |

| | | | | |
|-----------|----------|--------|----------|----------|
| 0.9290 | 0.9309 | 0.9327 | 0.9346 | 0.9364 |
| 0.9382 | 0.9399 | 0.9417 | 0.9434 | 0.9451 |
| 0.9467 | 0.9484 | 0.9500 | 0.9516 | 0.9532 |
| 0.9547 | 0.9563 | 0.9578 | 0.9592 | 0.9607 |
| 0.9621 | 0.9635 | 0.9649 | 0.9663 | 0.9676 |
| 0.9689 | 0.9702 | 0.9715 | 0.9727 | 0.9739 |
| 0.9751 | 0.9763 | 0.9775 | 0.9786 | 0.9797 |
| 0.9808 | 0.9818 | 0.9828 | 0.9839 | 0.9848 |
| 0.9858 | 0.9867 | 0.9876 | 0.9885 | 0.9894 |
| 0.9902 | 0.9911 | 0.9918 | 0.9926 | 0.9934 |
| 0.9941 | 0.9948 | 0.9955 | 0.9961 | 0.9967 |
| 0.9973 | 0.9979 | 0.9985 | 0.999006 | 0.999515 |
| 1.0 | | | | |
| 100_yr_sm | 0.1 | | | |
| 0.0 | 0.000568 | 0.0012 | 0.0018 | 0.0024 |
| 0.0031 | 0.0038 | 0.0045 | 0.0052 | 0.0060 |
| 0.0068 | 0.0076 | 0.0084 | 0.0093 | 0.0101 |
| 0.0111 | 0.0120 | 0.0129 | 0.0139 | 0.0149 |
| 0.0159 | 0.0170 | 0.0181 | 0.0192 | 0.0203 |
| 0.0214 | 0.0226 | 0.0238 | 0.0250 | 0.0263 |
| 0.0275 | 0.0288 | 0.0301 | 0.0315 | 0.0329 |
| 0.0342 | 0.0357 | 0.0371 | 0.0386 | 0.0400 |
| 0.0415 | 0.0431 | 0.0446 | 0.0462 | 0.0478 |
| 0.0495 | 0.0511 | 0.0528 | 0.0545 | 0.0562 |
| 0.0580 | 0.0597 | 0.0615 | 0.0634 | 0.0652 |
| 0.0671 | 0.0690 | 0.0709 | 0.0728 | 0.0748 |
| 0.0768 | 0.0788 | 0.0809 | 0.0829 | 0.0850 |
| 0.0871 | 0.0893 | 0.0914 | 0.0936 | 0.0958 |
| 0.0981 | 0.1003 | 0.1026 | 0.1049 | 0.1072 |
| 0.1096 | 0.1120 | 0.1144 | 0.1168 | 0.1193 |
| 0.1217 | 0.1242 | 0.1268 | 0.1293 | 0.1319 |
| 0.1345 | 0.1371 | 0.1397 | 0.1424 | 0.1451 |
| 0.1478 | 0.1518 | 0.1558 | 0.1599 | 0.1641 |
| 0.1683 | 0.1725 | 0.1768 | 0.1812 | 0.1856 |
| 0.1900 | 0.1946 | 0.1991 | 0.2037 | 0.2084 |
| 0.2131 | 0.2211 | 0.2291 | 0.2371 | 0.2451 |
| 0.2531 | 0.2646 | 0.2760 | 0.2875 | 0.2989 |
| 0.3103 | 0.3314 | 0.3526 | 0.3797 | 0.4177 |
| 0.4808 | 0.5823 | 0.6203 | 0.6474 | 0.6686 |
| 0.6897 | 0.7011 | 0.7125 | 0.7240 | 0.7354 |
| 0.7469 | 0.7549 | 0.7629 | 0.7709 | 0.7789 |
| 0.7869 | 0.7916 | 0.7963 | 0.8009 | 0.8054 |
| 0.8100 | 0.8144 | 0.8188 | 0.8232 | 0.8275 |
| 0.8317 | 0.8359 | 0.8401 | 0.8442 | 0.8482 |
| 0.8522 | 0.8549 | 0.8576 | 0.8603 | 0.8629 |
| 0.8655 | 0.8681 | 0.8707 | 0.8732 | 0.8758 |
| 0.8783 | 0.8807 | 0.8832 | 0.8856 | 0.8880 |
| 0.8904 | 0.8928 | 0.8951 | 0.8974 | 0.8997 |
| 0.9019 | 0.9042 | 0.9064 | 0.9086 | 0.9107 |
| 0.9129 | 0.9150 | 0.9171 | 0.9191 | 0.9212 |
| 0.9232 | 0.9252 | 0.9272 | 0.9291 | 0.9310 |
| 0.9329 | 0.9348 | 0.9366 | 0.9385 | 0.9403 |
| 0.9420 | 0.9438 | 0.9455 | 0.9472 | 0.9489 |
| 0.9505 | 0.9522 | 0.9538 | 0.9554 | 0.9569 |
| 0.9585 | 0.9600 | 0.9614 | 0.9629 | 0.9643 |
| 0.9658 | 0.9671 | 0.9685 | 0.9699 | 0.9712 |
| 0.9725 | 0.9737 | 0.9750 | 0.9762 | 0.9774 |
| 0.9786 | 0.9797 | 0.9808 | 0.9819 | 0.9830 |
| 0.9841 | 0.9851 | 0.9861 | 0.9871 | 0.9880 |
| 0.9889 | 0.9899 | 0.9907 | 0.9916 | 0.9924 |
| 0.9932 | 0.9940 | 0.9948 | 0.9955 | 0.9962 |
| 0.9969 | 0.9976 | 0.9982 | 0.9988 | 0.999432 |
| 1.0 | | | | |

GLOBAL OUTPUT:

| | | | | |
|---|----|-----|-------|--------|
| 1 | .1 | 0.1 | YNNNN | YNNNNN |
|---|----|-----|-------|--------|

VERIFICATION:

| | | | | | | | |
|--------------|---|---|---|---|---|---|---|
| DATA PREP | Y | Y | Y | Y | Y | Y | Y |
| PROCESSING Y | Y | Y | Y | Y | Y | | |

STORM 1_yr_sm

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Peak Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|----------------|-----------------|----------------------|
| Basin 1 | 0.012 | | 0.692 | | 12.12 | 14.2 | 1180.71 |
| CP1 | 0.012 | Upstream | 0.692 | | 12.12 | 14.2 | 1180.71 |
| CP1 | 0.012 | Downstream | 0.691 | 216.55 | 12.12 | 14.2 | 1179.35 |
| Basin 2 | 0.004 | | 0.368 | | 12.13 | 4.5 | 1052.08 |
| Reach 1 | 0.016 | Upstream | 0.606 | 214.10 | 12.13 | 18.6 | 1145.97 |

Line

| Start Time (hr) | Flow Values @ time increment | of 0.100 hr | | | | | |
|-----------------|------------------------------|-------------|-------|-------|-------|-------|-----|
| (hr) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | |
| 11.700 | 0.5 | 1.5 | 2.6 | 7.5 | 17.3 | 10.1 | 5.5 |
| 12.400 | 2.9 | 2.7 | 1.7 | 1.4 | 1.4 | 1.4 | 1.4 |
| 13.100 | 1.1 | 1.0 | 1.0 | 1.0 | 1.0 | 0.9 | 0.8 |
| 13.800 | 0.7 | 0.5 | 0.4 | 0.3 | 0.2 | | |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Peak Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|----------------|-----------------|----------------------|
| Reach 1 | 0.016 | Downstream | 0.493 | 213.53 | 12.22 | 14.6 | 897.96 |

Line

| Start Time (hr) | Flow Values @ time increment | of 0.100 hr | | | | | |
|-----------------|------------------------------|-------------|-------|-------|-------|-------|-----|
| (hr) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | |
| 12.100 | 5.5 | 14.3 | 11.1 | 6.3 | 3.6 | 2.7 | 1.9 |
| 12.800 | 1.5 | 1.4 | 1.4 | 1.4 | 1.2 | | |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Peak Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|----------------|-----------------|----------------------|
| Basin 3B1 | 0.006 | | 0.624 | | 12.12 | 8.2 | 1386.66 |
| Reach 1b | 0.022 | Upstream | 0.527 | 214.12 | 12.18 | 18.8 | 846.96 |
| Reach 1b | 0.022 | Downstream | 0.483 | 214.03 | 12.23 | 18.1 | 818.49 |
| Basin 3B2 | 0.002 | | 0.386 | | 12.12 | 2.6 | 1386.66 |
| CP2 | 0.024 | Upstream | 0.475 | | 12.22 | 19.3 | 802.09 |
| CP2 | 0.024 | Downstream | 0.473 | 212.38 | 12.24 | 19.1 | 796.66 |
| Reach 2 | 0.024 | Upstream | 0.473 | 213.17 | 12.24 | 19.1 | 796.66 |
| Reach 2 | 0.024 | Downstream | 0.468 | 213.17 | 12.24 | 19.1 | 795.42 |
| Basin 3A1 | 0.200E-03 | | 0.0 | | 2.48 | 0.0 | 0.0 |
| CP3 | 0.024 | Upstream | 0.464 | 209.18 | 12.24 | 19.1 | 788.85 |
| CP3 | 0.024 | Downstream | 0.412 | 208.77 | 12.35 | 14.9 | 615.78 |
| Basin 5A | 0.001 | | 0.124 | | 12.13 | 1.2 | 988.13 |
| CP4 | 0.025 | Upstream | 0.397 | 206.44 | 12.35 | 14.9 | 585.37 |
| CP4 | 0.025 | Downstream | 0.393 | 206.44 | 12.37 | 14.9 | 585.27 |
| Basin 5B | 0.002 | | 0.248 | | 12.13 | 2.4 | 988.13 |

Unnamed Tributary to Broad Branch

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Peak Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|------------------------|-------------------|----------------|-----------------|----------------------|
| Basin 4 | 0.065 | | 1.127 | | 12.14 | 79.1 | 1219.24 |
| Line | | | | | | | |
| Start Time (hr) | Flow (cfs) | Flow Values (cfs) | @ time increment (cfs) | of 0.100 hr (cfs) | 0.100 hr (cfs) | 0.100 hr (cfs) | 0.100 hr (cfs) |
| 10.900 | 1.1 | 1.2 | 1.7 | 2.2 | 2.4 | 2.7 | 2.9 |
| 11.600 | 4.9 | 6.7 | 9.3 | 15.3 | 31.4 | 69.0 | 55.9 |
| 12.300 | 28.6 | 18.8 | 15.9 | 11.4 | 8.6 | 8.3 | 8.3 |
| 13.000 | 8.3 | 6.8 | 5.9 | 5.8 | 5.8 | 5.8 | 4.4 |
| 13.700 | 3.4 | 3.3 | 3.2 | 3.2 | 3.2 | 3.1 | 3.1 |
| 14.400 | 3.1 | 3.0 | 3.0 | 3.0 | 2.9 | 2.9 | 2.9 |
| 15.100 | 2.3 | 1.9 | 1.8 | 1.9 | 1.8 | 1.8 | 1.8 |
| 15.800 | 1.8 | 1.8 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 |
| 16.500 | 1.7 | 1.7 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| 17.200 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| 17.900 | 1.4 | 1.4 | 1.4 | 1.4 | 1.3 | 1.3 | 1.3 |
| 18.600 | 1.3 | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 |
| 19.300 | 1.2 | 1.2 | 1.1 | 1.2 | 1.1 | 1.1 | 1.1 |
| 20.000 | 1.1 | 1.0 | 1.0 | 1.0 | 1.0 | 0.9 | 0.8 |
| 20.700 | 0.8 | 0.7 | 0.6 | 0.5 | 0.5 | 0.4 | 0.3 |
| 21.400 | 0.2 | 0.2 | 0.1 | | | | |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Peak Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|----------------|-----------------|----------------------|
| CP9 | 0.065 | Upstream | 1.127 | | 12.14 | 79.1 | 1219.24 |
| CP9 | 0.065 | Downstream | 1.126 | 214.07 | 12.15 | 77.1 | 1188.53 |
| CP9A | 0.065 | Upstream | 1.126 | 216.36 | 12.15 | 77.1 | 1188.53 |
| CP9A | 0.061 | Downstream | 0.0 | 215.50 | 10.90 | 0.0 | 0.0 |
| Reach 8 | 0.061 | Upstream | 0.0 | 210.00 | 10.90 | 0.0 | 0.0 |
| Reach 8 | 0.061 | Downstream | 0.0 | 210.00 | 10.90 | 0.0 | 0.0 |
| CP5 | 0.089 | Upstream | 0.120 | 193.73 | 12.37 | 14.9 | 168.37 |
| CP5 | 0.089 | Downstream | 0.119 | 193.73 | 12.39 | 14.9 | 168.32 |
| Basin 5F1 | 0.003 | | 0.260 | | 12.13 | 2.6 | 988.13 |
| Basin 5C | 0.001 | | 0.153 | | 12.13 | 1.4 | 988.13 |
| CP10 | 0.001 | Upstream | 0.153 | 206.04 | 12.13 | 1.4 | 988.13 |
| CP10 | 0.001 | Downstream | 0.099 | 206.04 | 12.12 | 1.4 | 988.13 |
| Basin 5C1 | 0.001 | | 0.153 | | 12.13 | 1.4 | 988.13 |
| CP11 | 0.003 | Upstream | 0.126 | 206.08 | 12.13 | 2.8 | 988.13 |
| CP11 | 0.003 | Downstream | 0.090 | 206.08 | 12.16 | 2.8 | 979.79 |
| Basin 5D | 0.003 | | 0.274 | | 12.13 | 2.8 | 988.13 |
| CP12 | 0.006 | Upstream | 0.180 | 206.16 | 12.15 | 5.3 | 939.27 |
| CP12 | 0.006 | Downstream | 0.174 | 206.16 | 12.16 | 5.3 | 933.41 |
| CP6 | 0.097 | Upstream | 0.126 | 193.73 | 12.39 | 14.9 | 153.92 |
| CP6 | 0.097 | Downstream | 0.126 | 193.73 | 12.39 | 14.9 | 153.90 |
| Basin 5F3 | 0.002 | | 0.199 | | 12.13 | 1.9 | 988.13 |
| Basin 5E | 0.002 | | 0.223 | | 12.13 | 2.1 | 988.13 |
| CP13 | 0.002 | Upstream | 0.223 | 206.06 | 12.13 | 2.1 | 988.13 |
| CP13 | 0.002 | Downstream | 0.201 | 206.06 | 12.07 | 2.1 | 987.15 |
| Basin 5F2 | 0.002 | | 0.189 | | 12.13 | 1.7 | 988.13 |

Unnamed Tributary to Broad Branch

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|----------------|-----------------|------------|
| CP14 | 0.004 | Upstream | 0.196 | 206.11 | 12.13 | 3.8 | 980.89 |
| CP14 | 0.004 | Downstream | 0.193 | 206.11 | 12.13 | 3.8 | 980.54 |
| CP7 | 0.103 | Upstream | 0.129 | 193.77 | 12.15 | 15.8 | 154.34 |
| CP7 | 0.103 | Downstream | 0.129 | 193.76 | 12.17 | 15.7 | 152.91 |
| Basin 5G | 0.003 | | 0.267 | | 12.13 | 2.6 | 988.13 |
| CP8 | 0.105 | Upstream | 0.132 | | 12.17 | 17.6 | 167.55 |
| CP8 | 0.105 | Downstream | 0.132 | 186.22 | 12.18 | 17.2 | 163.45 |
| Basin 3B | 0.013 | | 0.838 | | 12.12 | 18.3 | 1386.66 |
| Reach 3B | 0.013 | Upstream | 0.838 | 206.54 | 12.12 | 18.3 | 1386.66 |
| Reach 3B | 0.013 | Downstream | 0.837 | 206.54 | 12.13 | 18.3 | 1385.96 |
| Basin 3A2 | 0.200E-03 | | 0.0 | | 2.48 | 0.0 | 0.0 |
| Outlet 1 | 0.013 | Upstream | 0.824 | | 12.13 | 18.3 | 1365.31 |
| Outlet 1 | 0.013 | Downstream | 0.824 | 210.00 | 12.13 | 18.3 | 1365.30 |
| Basin 3A | 0.013 | | 0.931 | | 12.12 | 20.0 | 1529.71 |
| Reach 8.1 | 0.004 | Upstream | 17.363 | 214.54 | 12.15 | 77.1 | 18329.98 |
| Reach 8.1 | 0.004 | Downstream | 17.329 | 214.54 | 12.15 | 77.1 | 18329.98 |
| Outlet 2 | 0.031 | Upstream | 3.129 | | 12.13 | 114.1 | 3714.99 |
| Outlet 2 | 0.031 | Downstream | 3.129 | 210.37 | 12.13 | 114.1 | 3714.89 |
| OUTLET | 0.136 | | 0.809 | | 12.13 | 128.3 | 944.09 |

| Line Start Time (hr) | Flow (cfs) | Values (cfs) | @ time (cfs) | increment (cfs) | of 0.100 (cfs) | hr (cfs) | ----- |
|----------------------|------------|--------------|--------------|-----------------|----------------|----------|-------|
| 11.000 | 1.4 | 1.5 | 1.6 | 1.9 | 1.1 | 1.0 | 6.7 |
| 11.700 | 10.2 | 15.0 | 23.5 | 47.2 | 112.0 | 96.7 | 50.8 |
| 12.400 | 41.5 | 36.1 | 25.3 | 18.3 | 15.6 | 14.3 | 13.7 |
| 13.100 | 11.5 | 9.9 | 8.3 | 8.3 | 8.4 | 4.7 | 3.5 |
| 13.800 | 3.3 | 3.2 | 3.2 | 3.2 | 3.1 | 3.1 | 3.1 |
| 14.500 | 3.0 | 3.0 | 3.0 | 2.9 | 2.9 | 2.9 | 2.4 |
| 15.200 | 2.0 | 1.9 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 15.900 | 1.8 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 |
| 16.600 | 1.7 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.5 |
| 17.300 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.4 |
| 18.000 | 1.4 | 1.4 | 1.4 | 1.3 | 1.3 | 1.3 | 1.3 |
| 18.700 | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.2 |
| 19.400 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 |
| 20.100 | 1.1 | 1.0 | 1.0 | | | | |

STORM 2_yr_sm

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|----------------|-----------------|------------|
| Basin 1 | 0.012 | | 1.008 | | 12.12 | 19.7 | 1637.88 |
| CP1 | 0.012 | Upstream | 1.008 | | 12.12 | 19.7 | 1637.88 |
| CP1 | 0.012 | Downstream | 1.008 | 216.79 | 12.12 | 19.6 | 1636.90 |
| Basin 2 | 0.004 | | 0.650 | | 12.13 | 6.3 | 1490.32 |
| Reach 1 | 0.016 | Upstream | 0.914 | 215.12 | 12.12 | 26.0 | 1598.45 |

Unnamed Tributary to Broad Branch

| Line | | | | | | | |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|----------------|-----------------|-----------------|
| Start Time (hr) | Flow (cfs) | Flow (cfs) | Flow (cfs) | Flow (cfs) | Flow (cfs) | Flow (cfs) | Flow (cfs) |
| 11.600 | 1.4 | 1.7 | 2.5 | 5.3 | 11.2 | 24.4 | 14.0 |
| 12.300 | 7.6 | 5.3 | 5.0 | 2.3 | 1.9 | 1.9 | 1.9 |
| 13.000 | 1.9 | 1.5 | 1.3 | 1.3 | 1.3 | 1.4 | 0.9 |
| 13.700 | 0.2 | | | | | | |
| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Flow Rate (csm) |
| Reach 1 | 0.016 | Downstream | 0.801 | 214.38 | 12.21 | 20.6 | 1270.38 |
| Line | | | | | | | |
| Start Time (hr) | Flow (cfs) | Flow (cfs) | Flow (cfs) | Flow (cfs) | Flow (cfs) | Flow (cfs) | Flow (cfs) |
| 12.100 | 11.0 | 20.4 | 15.5 | 8.8 | 5.9 | 4.8 | 2.9 |
| 12.800 | 2.1 | 1.9 | 1.9 | 1.9 | 1.6 | 1.4 | 1.3 |
| 13.500 | 1.3 | | | | | | |
| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Flow Rate (csm) |
| Basin 3B1 | 0.006 | | 1.033 | | 12.12 | 11.0 | 1863.41 |
| Reach 1b | 0.022 | Upstream | 0.862 | 215.21 | 12.17 | 26.6 | 1199.98 |
| Reach 1b | 0.022 | Downstream | 0.807 | 215.10 | 12.22 | 25.8 | 1164.28 |
| Basin 3B2 | 0.002 | | 0.610 | | 12.12 | 3.5 | 1863.41 |
| CP2 | 0.024 | Upstream | 0.791 | | 12.21 | 27.4 | 1141.96 |
| CP2 | 0.024 | Downstream | 0.789 | 212.54 | 12.22 | 27.3 | 1136.32 |
| Reach 2 | 0.024 | Upstream | 0.789 | 213.67 | 12.22 | 27.3 | 1136.32 |
| Reach 2 | 0.024 | Downstream | 0.784 | 213.67 | 12.23 | 27.3 | 1135.08 |
| Basin 3A1 | 0.200E-03 | | 0.0 | | 2.27 | 0.0 | 0.0 |
| CP3 | 0.024 | Upstream | 0.778 | 209.98 | 12.23 | 27.3 | 1125.71 |
| CP3 | 0.024 | Downstream | 0.731 | 209.54 | 12.33 | 22.8 | 939.93 |
| Basin 5A | 0.001 | | 0.281 | | 12.12 | 1.8 | 1419.98 |
| CP4 | 0.025 | Upstream | 0.709 | 206.67 | 12.33 | 22.8 | 893.50 |
| CP4 | 0.025 | Downstream | 0.706 | 206.67 | 12.34 | 22.8 | 893.40 |
| Basin 5B | 0.002 | | 0.458 | | 12.12 | 3.5 | 1419.98 |
| Basin 4 | 0.065 | | 1.575 | | 12.14 | 107.6 | 1659.88 |
| Line | | | | | | | |
| Start Time (hr) | Flow (cfs) | Flow (cfs) | Flow (cfs) | Flow (cfs) | Flow (cfs) | Flow (cfs) | Flow (cfs) |
| 10.600 | 1.2 | 1.6 | 1.8 | 2.0 | 2.2 | 3.0 | 3.7 |
| 11.300 | 4.1 | 4.4 | 4.7 | 8.0 | 10.7 | 14.5 | 23.1 |
| 12.000 | 45.5 | 95.1 | 75.7 | 38.9 | 25.7 | 21.8 | 15.5 |
| 12.700 | 11.6 | 11.1 | 11.1 | 11.1 | 9.1 | 7.8 | 7.6 |
| 13.400 | 7.6 | 7.7 | 5.7 | 4.4 | 4.2 | 4.2 | 4.2 |
| 14.100 | 4.0 | 4.0 | 4.0 | 3.9 | 3.9 | 3.9 | 3.8 |
| 14.800 | 3.8 | 3.7 | 3.7 | 2.9 | 2.5 | 2.4 | 2.3 |
| 15.500 | 2.3 | 2.3 | 2.3 | 2.2 | 2.2 | 2.2 | 2.2 |

Unnamed Tributary to Broad Branch

| Line Start Time (hr) | Flow (cfs) | Values @ time (cfs) | increment of (cfs) | 0.100 hr (cfs) | Flow (cfs) | Values @ time (cfs) | increment of (cfs) |
|--------------------------------|-----------------------------|--------------------------------|--------------------------|-------------------|----------------------|------------------------|-----------------------|
| 16.200 | 2.2 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.0 |
| 16.900 | 2.0 | 2.0 | 2.0 | 1.9 | 1.9 | 1.9 | 1.9 |
| 17.600 | 1.9 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.7 |
| 18.300 | 1.7 | 1.7 | 1.7 | 1.6 | 1.6 | 1.6 | 1.6 |
| 19.000 | 1.6 | 1.5 | 1.5 | 1.5 | 1.4 | 1.4 | 1.4 |
| 19.700 | 1.4 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.2 |
| 20.400 | 1.2 | 1.2 | 1.2 | 1.1 | 1.2 | 1.1 | 1.1 |
| 21.100 | 1.0 | 1.0 | 1.0 | 0.9 | 0.9 | 0.9 | 0.9 |
| 21.800 | 0.8 | 0.8 | 0.7 | 0.7 | 0.7 | 0.6 | 0.6 |
| 22.500 | 0.5 | 0.5 | 0.5 | 0.4 | 0.4 | 0.4 | 0.3 |
| 23.200 | 0.3 | 0.2 | 0.2 | 0.1 | | | |
| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Rate (csm) |
| CP9 | 0.065 | Upstream | 1.575 | | 12.14 | 107.6 | 1659.88 |
| CP9 | 0.065 | Downstream | 1.574 | 214.82 | 12.15 | 102.9 | 1587.60 |
| CP9A | 0.065 | Upstream | 1.574 | 216.54 | 12.15 | 102.9 | 1587.60 |
| CP9A | 0.061 | Downstream | 0.0 | 215.50 | 10.59 | 0.0 | 0.0 |
| Reach 8 | 0.061 | Upstream | 0.0 | 210.00 | 10.59 | 0.0 | 0.0 |
| Reach 8 | 0.061 | Downstream | 0.0 | 210.00 | 10.59 | 0.0 | 0.0 |
| CP5 | 0.089 | Upstream | 0.216 | 194.03 | 12.31 | 23.2 | 262.08 |
| CP5 | 0.089 | Downstream | 0.215 | 194.02 | 12.33 | 23.0 | 259.61 |
| Basin 5F1 | 0.003 | | 0.477 | | 12.12 | 3.7 | 1419.98 |
| Basin 5C | 0.001 | | 0.323 | | 12.12 | 2.0 | 1419.98 |
| CP10 | 0.001 | Upstream | 0.323 | 206.06 | 12.12 | 2.0 | 1419.98 |
| CP10 | 0.001 | Downstream | 0.268 | 206.06 | 12.09 | 2.0 | 1416.76 |
| Basin 5C1 | 0.001 | | 0.323 | | 12.12 | 2.0 | 1419.98 |
| CP11 | 0.003 | Upstream | 0.296 | 206.12 | 12.13 | 4.0 | 1407.78 |
| CP11 | 0.003 | Downstream | 0.265 | 206.12 | 12.16 | 4.0 | 1405.32 |
| Basin 5D | 0.003 | | 0.491 | | 12.12 | 4.0 | 1419.98 |
| CP12 | 0.006 | Upstream | 0.375 | 206.23 | 12.13 | 7.8 | 1370.30 |
| CP12 | 0.006 | Downstream | 0.371 | 206.23 | 12.14 | 7.8 | 1370.30 |
| CP6 | 0.097 | Upstream | 0.231 | 194.10 | 12.33 | 25.1 | 259.54 |
| CP6 | 0.097 | Downstream | 0.231 | 194.10 | 12.33 | 25.1 | 259.31 |
| Basin 5F3 | 0.002 | | 0.404 | | 12.12 | 2.7 | 1419.98 |
| Basin 5E | 0.002 | | 0.428 | | 12.12 | 3.0 | 1419.98 |
| CP13 | 0.002 | Upstream | 0.428 | 206.09 | 12.12 | 3.0 | 1419.98 |
| CP13 | 0.002 | Downstream | 0.399 | 206.09 | 12.14 | 3.0 | 1417.46 |
| Basin 5F2 | 0.002 | | 0.383 | | 12.12 | 2.5 | 1419.98 |
| CP14 | 0.004 | Upstream | 0.389 | 206.16 | 12.13 | 5.5 | 1410.28 |
| CP14 | 0.004 | Downstream | 0.385 | 206.16 | 12.14 | 5.4 | 1406.80 |
| CP7 | 0.103 | Upstream | 0.240 | 194.11 | 12.24 | 25.5 | 248.27 |
| CP7 | 0.103 | Downstream | 0.239 | 194.11 | 12.25 | 25.4 | 247.39 |
| Basin 5G | 0.003 | | 0.480 | | 12.12 | 3.8 | 1419.98 |
| CP8 | 0.105 | Upstream | 0.245 | | 12.16 | 27.6 | 262.68 |
| CP8 | 0.105 | Downstream | 0.245 | 186.86 | 12.19 | 27.3 | 259.33 |
| Basin 3B | 0.013 | | 1.183 | | 12.12 | 24.6 | 1863.41 |
| Reach 3B | 0.013 | Upstream | 1.183 | 206.73 | 12.12 | 24.6 | 1863.41 |
| Reach 3B | 0.013 | Downstream | 1.176 | 206.73 | 12.12 | 24.6 | 1863.41 |
| Basin 3A2 | 0.200E-03 | | 0.0 | | 2.27 | 0.0 | 0.0 |

Unnamed Tributary to Broad Branch

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|----------------|-----------------|------------|
| Outlet 1 | 0.013 | Upstream | 1.159 | | 12.12 | 24.6 | 1835.64 |
| Outlet 1 | 0.013 | Downstream | 1.159 | 210.03 | 12.12 | 24.6 | 1835.62 |
| Basin 3A | 0.013 | | 1.321 | | 12.12 | 26.4 | 2016.51 |
| Reach 8.1 | 0.004 | Upstream | 24.275 | 215.10 | 12.15 | 102.9 | 24484.71 |
| Reach 8.1 | 0.004 | Downstream | 24.275 | 215.10 | 12.15 | 102.9 | 24484.71 |
| Outlet 2 | 0.031 | Upstream | 4.392 | | 12.14 | 149.5 | 4868.13 |
| Outlet 2 | 0.031 | Downstream | 4.392 | 210.51 | 12.14 | 149.5 | 4868.11 |
| OUTLET | 0.136 | | 1.182 | | 12.14 | 174.4 | 1282.67 |

Line

| Start Time (hr) | Flow Values @ time increment of 0.100 hr | | | | | | |
|-----------------|--|-------|-------|-------|-------|-------|-------|
| | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 10.700 | 1.6 | 1.8 | 2.0 | 2.2 | 2.8 | 4.8 | 5.2 |
| 11.400 | 6.2 | 7.1 | 11.6 | 15.9 | 21.5 | 34.1 | 70.9 |
| 12.100 | 148.6 | 143.2 | 79.9 | 59.6 | 50.1 | 35.6 | 25.6 |
| 12.800 | 22.3 | 20.4 | 19.4 | 16.1 | 13.8 | 13.0 | 12.5 |
| 13.500 | 12.4 | 8.5 | 4.5 | 4.2 | 4.2 | 4.2 | 4.1 |
| 14.200 | 4.0 | 4.0 | 3.9 | 3.9 | 3.9 | 3.8 | 3.8 |
| 14.900 | 3.7 | 3.7 | 3.1 | 2.5 | 2.4 | 2.3 | 2.3 |
| 15.600 | 2.3 | 2.3 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |
| 16.300 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.0 | 2.0 |
| 17.000 | 2.0 | 2.0 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 17.700 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.7 | 1.7 |
| 18.400 | 1.7 | 1.7 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| 19.100 | 1.5 | 1.5 | 1.5 | 1.5 | 1.4 | 1.4 | 1.4 |
| 19.800 | 1.4 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.2 |
| 20.500 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 | 1.0 |
| 21.200 | 1.0 | 1.0 | 0.7 | 0.7 | | | |

STORM 5_yr_sm

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|----------------|-----------------|------------|
| Basin 1 | 0.012 | | 1.672 | | 12.12 | 27.2 | 2270.77 |
| CP1 | 0.012 | Upstream | 1.672 | | 12.12 | 27.2 | 2270.77 |
| CP1 | 0.012 | Downstream | 1.671 | 217.04 | 12.12 | 27.2 | 2268.15 |
| Basin 2 | 0.004 | | 1.071 | | 12.12 | 9.0 | 2115.14 |
| Reach 1 | 0.016 | Upstream | 1.514 | 215.66 | 12.12 | 36.2 | 2227.81 |

Line

| Start Time (hr) | Flow Values @ time increment of 0.100 hr | | | | | | |
|-----------------|--|-------|-------|-------|-------|-------|-------|
| | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 11.200 | 1.2 | 1.2 | 1.3 | 1.4 | 2.6 | 3.2 | 5.7 |
| 11.900 | 9.0 | 17.4 | 34.4 | 19.8 | 11.0 | 7.9 | 7.4 |
| 12.600 | 4.6 | 2.8 | 2.8 | 2.8 | 2.8 | 2.2 | 1.9 |
| 13.300 | 1.9 | 1.9 | 1.9 | 1.3 | 1.1 | 1.1 | 1.0 |
| 14.000 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.9 |
| 14.700 | 0.9 | 0.9 | 0.9 | 0.9 | 0.8 | 0.8 | 0.8 |

Unnamed Tributary to Broad Branch

| Line | | Flow Values @ time increment of 0.100 hr | | | | | | |
|--------------------------|-----------------------|--|--------------------|----------------|----------------|-----------------|----------------------|-------|
| Start Time (hr) | | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 15.400 | | 0.8 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.6 |
| 16.100 | | 0.6 | 0.6 | 0.6 | 0.5 | 0.5 | 0.5 | 0.5 |
| 16.800 | | 0.5 | 0.4 | 0.4 | 0.4 | 0.4 | 0.3 | 0.3 |
| 17.500 | | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 |
| 18.200 | | 0.1 | 0.1 | | | | | |
| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Peak Flow Rate (csm) | |
| Reach 1 | 0.016 | Downstream | 1.363 | 215.61 | 12.20 | 30.1 | 1851.94 | |
| Line | | Flow Values @ time increment of 0.100 hr | | | | | | |
| Start Time (hr) | | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 11.900 | | 3.7 | 9.6 | 18.7 | 30.1 | 20.7 | 11.8 | 8.3 |
| 12.600 | | 7.1 | 4.7 | 3.1 | 2.8 | 2.8 | 2.7 | 2.2 |
| 13.300 | | 2.0 | 1.9 | 1.9 | 1.8 | 1.3 | 1.1 | 1.1 |
| 14.000 | | 1.0 | 1.0 | 1.0 | 1.0 | | | |
| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Peak Flow Rate (csm) | |
| Basin 3B1 | 0.006 | | 1.642 | | 12.12 | 14.8 | 2501.84 | |
| Reach 1b | 0.022 | Upstream | 1.437 | 215.69 | 12.16 | 39.2 | 1768.19 | |
| Reach 1b | 0.022 | Downstream | 1.384 | 215.68 | 12.20 | 38.3 | 1727.08 | |
| Basin 3B2 | 0.002 | | 1.028 | | 12.12 | 4.7 | 2501.84 | |
| CP2 | 0.024 | Upstream | 1.356 | | 12.18 | 40.9 | 1704.43 | |
| CP2 | 0.024 | Downstream | 1.354 | 212.86 | 12.23 | 39.4 | 1642.56 | |
| Reach 2 | 0.024 | Upstream | 1.354 | 213.98 | 12.23 | 39.4 | 1642.56 | |
| Reach 2 | 0.024 | Downstream | 1.351 | 213.98 | 12.23 | 39.4 | 1641.41 | |
| Basin 3A1 | 0.2000E-03 | | 0.0 | | 1.90 | 0.0 | 0.0 | |
| CP3 | 0.024 | Upstream | 1.340 | 210.53 | 12.23 | 39.4 | 1627.85 | |
| CP3 | 0.024 | Downstream | 1.289 | 210.43 | 12.30 | 35.4 | 1462.11 | |
| Basin 5A | 0.001 | | 0.606 | | 12.13 | 2.6 | 2037.36 | |
| CP4 | 0.025 | Upstream | 1.255 | 206.98 | 12.30 | 35.4 | 1389.89 | |
| CP4 | 0.025 | Downstream | 1.253 | 206.98 | 12.31 | 35.4 | 1389.38 | |
| Basin 5B | 0.002 | | 0.906 | | 12.13 | 5.0 | 2037.36 | |
| Basin 4 | 0.065 | | 2.366 | | 12.13 | 146.9 | 2265.75 | |
| Line | | Flow Values @ time increment of 0.100 hr | | | | | | |
| Start Time (hr) | | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 9.700 | | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 |
| 10.400 | | 1.8 | 1.9 | 2.9 | 3.7 | 4.0 | 4.2 | 4.5 |
| 11.100 | | 6.0 | 7.3 | 7.8 | 8.3 | 8.7 | 14.3 | 18.8 |
| 11.800 | | 24.5 | 37.2 | 68.3 | 132.1 | 103.6 | 54.7 | 37.0 |
| 12.500 | | 31.7 | 22.4 | 16.7 | 15.9 | 15.9 | 15.9 | 13.1 |
| 13.200 | | 11.1 | 10.8 | 10.9 | 10.9 | 8.1 | 6.3 | 6.0 |

Unnamed Tributary to Broad Branch

| Line Start Time (hr) | Flow (cfs) | Values @ time (cfs) | increment of (cfs) | 0.100 hr (cfs) | Flow (cfs) | 0.100 hr (cfs) | Flow (cfs) |
|----------------------------|---------------|------------------------|-----------------------|-------------------|---------------|-------------------|---------------|
| 13.900 | 5.9 | 5.8 | 5.8 | 5.7 | 5.6 | 5.5 | 5.5 |
| 14.600 | 5.4 | 5.4 | 5.3 | 5.2 | 5.1 | 4.1 | 3.4 |
| 15.300 | 3.3 | 3.3 | 3.2 | 3.2 | 3.2 | 3.1 | 3.1 |
| 16.000 | 3.1 | 3.1 | 3.0 | 2.9 | 2.9 | 2.9 | 2.9 |
| 16.700 | 2.8 | 2.8 | 2.8 | 2.8 | 2.7 | 2.7 | 2.7 |
| 17.400 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.4 | 2.5 |
| 18.100 | 2.4 | 2.4 | 2.4 | 2.4 | 2.3 | 2.2 | 2.2 |
| 18.800 | 2.2 | 2.1 | 2.2 | 2.1 | 2.1 | 2.0 | 2.0 |
| 19.500 | 2.0 | 1.9 | 1.9 | 1.8 | 1.9 | 1.8 | 1.8 |
| 20.200 | 1.7 | 1.7 | 1.7 | 1.6 | 1.6 | 1.6 | 1.5 |
| 20.900 | 1.5 | 1.5 | 1.5 | 1.4 | 1.3 | 1.4 | 1.3 |
| 21.600 | 1.3 | 1.2 | 1.3 | 1.2 | 1.1 | 1.2 | 1.1 |
| 22.300 | 1.1 | 1.0 | 1.0 | 1.0 | 0.8 | 0.7 | 0.6 |
| 23.000 | 0.4 | 0.3 | 0.2 | | | | |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Peak Elevation (ft) | Flow Time (hr) | Rate (cfs) | Rate (csm) |
|--------------------------------|-----------------------------|--------------------------------|--------------------------|---------------------------|----------------------|---------------|---------------|
| CP9 | 0.065 | Upstream | 2.366 | | 12.13 | 146.9 | 2265.75 |
| CP9 | 0.065 | Downstream | 2.365 | 215.79 | 12.16 | 138.5 | 2136.62 |
| CP9A | 0.065 | Upstream | 2.365 | 216.80 | 12.16 | 138.5 | 2136.62 |
| CP9A | 0.061 | Downstream | 0.019 | 215.78 | 12.16 | 15.3 | 252.94 |
| Reach 8 | 0.061 | Upstream | 0.019 | 211.01 | 12.16 | 15.3 | 252.94 |
| Reach 8 | 0.061 | Downstream | 0.017 | 210.93 | 12.18 | 13.3 | 219.88 |
| CP5 | 0.089 | Upstream | 0.397 | 194.54 | 12.19 | 43.2 | 487.79 |
| CP5 | 0.089 | Downstream | 0.396 | 194.54 | 12.20 | 43.1 | 486.35 |
| Basin 5F1 | 0.003 | | 0.925 | | 12.13 | 5.3 | 2037.36 |
| Basin 5C | 0.001 | | 0.642 | | 12.13 | 2.9 | 2037.36 |
| CP10 | 0.001 | Upstream | 0.642 | 206.09 | 12.13 | 2.9 | 2037.36 |
| CP10 | 0.001 | Downstream | 0.591 | 206.09 | 12.14 | 2.9 | 2035.80 |
| Basin 5C1 | 0.001 | | 0.642 | | 12.13 | 2.9 | 2037.36 |
| CP11 | 0.003 | Upstream | 0.617 | 206.17 | 12.13 | 5.8 | 2022.68 |
| CP11 | 0.003 | Downstream | 0.586 | 206.17 | 12.16 | 5.8 | 2018.80 |
| Basin 5D | 0.003 | | 0.939 | | 12.13 | 5.7 | 2037.36 |
| CP12 | 0.006 | Upstream | 0.761 | 206.33 | 12.14 | 11.1 | 1963.44 |
| CP12 | 0.006 | Downstream | 0.754 | 206.33 | 12.14 | 11.1 | 1963.44 |
| CP6 | 0.097 | Upstream | 0.431 | 194.65 | 12.20 | 53.8 | 555.23 |
| CP6 | 0.097 | Downstream | 0.431 | 194.65 | 12.21 | 53.6 | 554.11 |
| Basin 5F3 | 0.002 | | 0.742 | | 12.13 | 3.8 | 2037.36 |
| Basin 5E | 0.002 | | 0.791 | | 12.13 | 4.3 | 2037.36 |
| CP13 | 0.002 | Upstream | 0.791 | 206.13 | 12.13 | 4.3 | 2037.36 |
| CP13 | 0.002 | Downstream | 0.762 | 206.13 | 12.14 | 4.3 | 2033.76 |
| Basin 5F2 | 0.002 | | 0.721 | | 12.13 | 3.6 | 2037.36 |
| CP14 | 0.004 | Upstream | 0.743 | 206.23 | 12.13 | 7.8 | 2024.75 |
| CP14 | 0.004 | Downstream | 0.738 | 206.23 | 12.13 | 7.8 | 2024.75 |
| CP7 | 0.103 | Upstream | 0.448 | 194.70 | 12.20 | 60.4 | 589.04 |
| CP7 | 0.103 | Downstream | 0.448 | 194.70 | 12.21 | 60.3 | 587.71 |
| Basin 5G | 0.003 | | 0.929 | | 12.13 | 5.4 | 2037.36 |
| CP8 | 0.105 | Upstream | 0.460 | | 12.21 | 63.0 | 598.52 |
| CP8 | 0.105 | Downstream | 0.460 | 188.62 | 12.24 | 57.4 | 544.99 |
| Basin 3B | 0.013 | | 1.966 | | 12.12 | 33.1 | 2501.84 |

Unnamed Tributary to Broad Branch

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|----------------|-----------------|------------|
| Reach 3B | 0.013 | Upstream | 1.966 | 206.94 | 12.12 | 33.1 | 2501.84 |
| Reach 3B | 0.013 | Downstream | 1.960 | 206.94 | 12.12 | 33.1 | 2500.09 |
| Basin 3A2 | 0.200E-03 | | 0.0 | | 1.90 | 0.0 | 0.0 |
| Outlet 1 | 0.013 | Upstream | 1.931 | | 12.12 | 33.1 | 2462.84 |
| Outlet 1 | 0.013 | Downstream | 1.931 | 210.06 | 12.12 | 33.1 | 2462.80 |
| Basin 3A | 0.013 | | 2.138 | | 12.12 | 34.7 | 2653.24 |
| Reach 8.1 | 0.004 | Upstream | 36.190 | 215.78 | 12.16 | 123.2 | 29304.62 |
| Reach 8.1 | 0.004 | Downstream | 36.190 | 215.78 | 12.13 | 123.2 | 29304.62 |
| Outlet 2 | 0.031 | Upstream | 6.709 | | 12.13 | 190.6 | 6206.77 |
| Outlet 2 | 0.031 | Downstream | 6.709 | 210.67 | 12.13 | 190.6 | 6206.68 |
| OUTLET | 0.136 | | 1.872 | | 12.13 | 234.0 | 1721.51 |

| Line Start Time (hr) | Flow Values @ time increment of 0.100 hr |
|----------------------|---|
| (hr) | (cfs) (cfs) (cfs) (cfs) (cfs) (cfs) (cfs) |
| 9.700 | 1.0 1.2 1.2 1.3 1.4 1.5 1.6 |
| 10.400 | 1.7 1.8 2.6 4.7 5.1 5.4 6.2 |
| 11.100 | 8.8 10.8 11.6 12.2 12.7 21.1 27.5 |
| 11.800 | 35.8 57.3 110.9 211.1 211.2 130.4 95.2 |
| 12.500 | 75.8 49.7 36.2 31.5 29.0 27.7 23.0 |
| 13.200 | 20.0 19.1 18.8 18.5 14.4 11.4 10.3 |
| 13.900 | 9.8 9.4 9.3 9.1 9.0 7.9 7.8 |
| 14.600 | 7.7 7.6 7.5 7.4 7.3 4.3 3.5 |
| 15.300 | 3.3 3.3 3.2 3.1 3.2 3.1 3.1 |
| 16.000 | 3.1 3.1 3.0 2.9 2.9 2.9 2.9 |
| 16.700 | 2.9 2.8 2.8 2.8 2.7 2.7 2.7 |
| 17.400 | 2.6 2.6 2.6 2.6 2.6 2.5 2.4 |
| 18.100 | 2.4 2.4 2.4 2.4 2.3 2.2 2.2 |
| 18.800 | 2.2 2.2 2.1 2.1 2.1 2.0 2.0 |
| 19.500 | 2.0 1.9 1.9 1.9 1.9 1.9 1.8 |
| 20.200 | 1.7 1.7 1.7 1.6 1.6 1.6 1.6 |
| 20.900 | 1.5 1.5 1.5 1.4 1.4 1.4 1.3 |
| 21.600 | 1.3 1.3 1.3 1.2 1.1 1.2 1.1 |
| 22.300 | 1.1 1.0 1.0 1.0 1.0 1.0 1.0 |

STORM 10_yr_sm

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|----------------|-----------------|------------|
| Basin 1 | 0.012 | | 2.306 | | 12.12 | 33.2 | 2764.62 |
| CP1 | 0.012 | Upstream | 2.306 | | 12.12 | 33.2 | 2764.62 |
| CP1 | 0.012 | Downstream | 2.305 | 217.13 | 12.12 | 33.2 | 2763.38 |
| Basin 2 | 0.004 | | 1.633 | | 12.12 | 11.1 | 2609.60 |
| Reach 1 | 0.016 | Upstream | 2.129 | 215.91 | 12.12 | 44.3 | 2723.13 |

Unnamed Tributary to Broad Branch

Line
 Start Time ----- Flow Values @ time increment of 0.100 hr -----
 (hr) (cfs) (cfs) (cfs) (cfs) (cfs) (cfs)
 10.800 1.0 1.1 1.1 1.6 1.8 1.9 2.0
 11.500 2.1 5.0 5.9 7.9 12.1 22.5 42.3
 12.200 24.4 13.8 9.9 9.3 5.8 4.9 4.8
 12.900 4.8 4.8 2.7 2.5 2.4 2.5 2.5
 13.600 1.6 1.4 1.3 1.3 1.3 1.3 1.3
 14.300 1.3 1.3 1.3 1.2 1.2 1.2 1.2
 15.000 1.2 0.8 0.3

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Time (hr) | Peak Rate (cfs) | Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|-----------|-----------------|-----------------|
| Reach 1 | 0.016 | Downstream | 1.969 | 215.68 | 12.19 | 38.2 | 2352.87 |

Line
 Start Time ----- Flow Values @ time increment of 0.100 hr -----
 (hr) (cfs) (cfs) (cfs) (cfs) (cfs) (cfs)
 11.700 2.2 6.2 8.6 13.9 25.7 38.0 23.4
 12.400 13.7 10.1 8.7 5.9 4.9 4.8 4.8
 13.100 4.6 3.0 2.5 2.5 2.5 2.3 1.6
 13.800 1.4 1.4 1.3 1.3 1.3 1.3 1.3
 14.500 1.3 1.3 1.2 1.2 1.2 1.2 1.2

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Time (hr) | Peak Rate (cfs) | Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|-----------|-----------------|-----------------|
| Basin 3B1 | 0.006 | | 2.195 | | 12.12 | 17.6 | 2990.97 |
| Reach 1b | 0.022 | Upstream | 2.029 | 216.22 | 12.16 | 50.4 | 2274.94 |
| Reach 1b | 0.022 | Downstream | 1.966 | 216.15 | 12.19 | 48.9 | 2208.89 |
| Basin 3B2 | 0.002 | | 1.483 | | 12.12 | 5.6 | 2990.97 |
| CP2 | 0.024 | Upstream | 1.928 | | 12.18 | 52.4 | 2183.75 |
| CP2 | 0.024 | Downstream | 1.927 | 213.49 | 12.24 | 47.8 | 1990.72 |
| Reach 2 | 0.024 | Upstream | 1.927 | 215.17 | 12.24 | 47.8 | 1990.72 |
| Reach 2 | 0.024 | Downstream | 1.927 | 215.17 | 12.24 | 47.8 | 1990.01 |
| Basin 3A1 | 0.200E-03 | | 0.0 | | 1.59 | 0.0 | 0.0 |
| CP3 | 0.024 | Upstream | 1.911 | 210.70 | 12.24 | 47.8 | 1973.57 |
| CP3 | 0.024 | Downstream | 1.834 | 210.63 | 12.31 | 43.8 | 1810.23 |
| Basin 5A | 0.001 | | 0.879 | | 12.12 | 3.2 | 2530.97 |
| CP4 | 0.025 | Upstream | 1.786 | 207.13 | 12.31 | 44.8 | 1758.31 |
| CP4 | 0.025 | Downstream | 1.785 | 207.13 | 12.32 | 44.7 | 1754.30 |
| Basin 5B | 0.002 | | 1.250 | | 12.12 | 6.2 | 2530.97 |
| Basin 4 | 0.065 | | 3.080 | | 12.14 | 177.0 | 2729.94 |

Line
 Start Time ----- Flow Values @ time increment of 0.100 hr -----
 (hr) (cfs) (cfs) (cfs) (cfs) (cfs) (cfs)
 9.100 1.2 1.5 1.6 1.7 1.9 2.0 2.1
 9.800 2.2 2.4 2.5 2.6 2.7 2.9 3.0
 10.500 3.1 4.8 6.0 6.4 6.7 6.9 9.2

Unnamed Tributary to Broad Branch

| Line Start Time (hr) | Flow (cfs) | Values @ time (cfs) | increment of (cfs) | 0.100 hr | 0.100 hr (cfs) | 0.100 hr (cfs) |
|----------------------------|---------------|------------------------|-----------------------|----------|-------------------|-------------------|
| 11.200 | 11.0 | 11.6 | 12.1 | 12.6 | 20.2 | 26.1 |
| 11.900 | 49.4 | 87.2 | 160.9 | 125.4 | 67.3 | 45.9 |
| 12.600 | 28.2 | 21.1 | 20.1 | 20.0 | 20.1 | 16.4 |
| 13.300 | 13.7 | 13.7 | 13.8 | 10.3 | 8.0 | 7.6 |
| 14.000 | 7.4 | 7.3 | 7.2 | 7.2 | 7.1 | 7.0 |
| 14.700 | 6.8 | 6.7 | 6.7 | 6.6 | 5.2 | 4.4 |
| 15.400 | 4.2 | 4.1 | 4.0 | 4.0 | 4.0 | 4.0 |
| 16.100 | 3.9 | 3.8 | 3.8 | 3.8 | 3.8 | 3.7 |
| 16.800 | 3.6 | 3.5 | 3.6 | 3.5 | 3.5 | 3.3 |
| 17.500 | 3.3 | 3.3 | 3.3 | 3.2 | 3.2 | 3.1 |
| 18.200 | 3.0 | 3.0 | 3.0 | 2.9 | 2.9 | 2.8 |
| 18.900 | 2.8 | 2.7 | 2.6 | 2.7 | 2.6 | 2.6 |
| 19.600 | 2.5 | 2.4 | 2.4 | 2.4 | 2.4 | 2.3 |
| 20.300 | 2.2 | 2.1 | 2.2 | 2.1 | 2.0 | 2.0 |
| 21.000 | 1.9 | 1.9 | 1.8 | 1.8 | 1.7 | 1.7 |
| 21.700 | 1.7 | 1.7 | 1.5 | 1.5 | 1.5 | 1.4 |
| 22.400 | 1.4 | 1.4 | 1.2 | 1.2 | 1.2 | 1.1 |
| 23.100 | 1.1 | 1.1 | 1.0 | 0.9 | 0.7 | 0.6 |
| 23.800 | 0.3 | 0.1 | | | | 0.4 |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Peak Flow | | | |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|-----------|------------|------------|
| | | | | Elevation (ft) | Time (hr) | Rate (cfs) | Rate (csm) |
| CP9 | 0.065 | Upstream | 3.080 | | 12.14 | 177.0 | 2729.94 |
| CP9 | 0.065 | Downstream | 3.079 | 216.16 | 12.15 | 173.3 | 2672.19 |
| CP9A | 0.065 | Upstream | 3.079 | 217.03 | 12.15 | 173.3 | 2672.19 |
| CP9A | 0.061 | Downstream | 0.101 | 216.16 | 12.15 | 50.0 | 825.42 |
| Reach 8 | 0.061 | Upstream | 0.101 | 211.90 | 12.15 | 50.0 | 825.42 |
| Reach 8 | 0.061 | Downstream | 0.100 | 211.83 | 12.17 | 47.2 | 778.68 |
| CP5 | 0.089 | Upstream | 0.616 | 194.90 | 12.17 | 85.3 | 963.51 |
| CP5 | 0.089 | Downstream | 0.615 | 194.90 | 12.18 | 85.1 | 960.97 |
| Basin 5F1 | 0.003 | | 1.269 | | 12.12 | 6.6 | 2530.97 |
| Basin 5C | 0.001 | | 0.945 | | 12.12 | 3.6 | 2530.97 |
| CP10 | 0.001 | Upstream | 0.945 | 206.11 | 12.12 | 3.6 | 2530.97 |
| CP10 | 0.001 | Downstream | 0.883 | 206.11 | 12.14 | 3.6 | 2527.75 |
| Basin 5C1 | 0.001 | | 0.958 | | 12.12 | 3.6 | 2530.97 |
| CP11 | 0.003 | Upstream | 0.921 | 206.21 | 12.13 | 7.2 | 2514.22 |
| CP11 | 0.003 | Downstream | 0.888 | 206.21 | 12.15 | 7.2 | 2509.03 |
| Basin 5D | 0.003 | | 1.287 | | 12.12 | 7.1 | 2530.97 |
| CP12 | 0.006 | Upstream | 1.086 | 206.41 | 12.14 | 13.9 | 2444.86 |
| CP12 | 0.006 | Downstream | 1.076 | 206.41 | 12.14 | 13.9 | 2443.92 |
| CP6 | 0.097 | Upstream | 0.660 | 195.05 | 12.18 | 101.3 | 1045.98 |
| CP6 | 0.097 | Downstream | 0.659 | 195.05 | 12.19 | 101.1 | 1044.04 |
| Basin 5F3 | 0.002 | | 1.168 | | 12.12 | 4.8 | 2530.97 |
| Basin 5E | 0.002 | | 1.207 | | 12.12 | 5.4 | 2530.97 |
| CP13 | 0.002 | Upstream | 1.207 | 206.16 | 12.12 | 5.4 | 2530.97 |
| CP13 | 0.002 | Downstream | 1.178 | 206.16 | 12.14 | 5.3 | 2528.30 |
| Basin 5F2 | 0.002 | | 1.061 | | 12.12 | 4.4 | 2530.97 |
| CP14 | 0.004 | Upstream | 1.125 | 206.29 | 12.13 | 9.7 | 2516.94 |
| CP14 | 0.004 | Downstream | 1.119 | 206.29 | 12.13 | 9.7 | 2515.88 |
| CP7 | 0.103 | Upstream | 0.686 | 195.14 | 12.18 | 111.5 | 1087.15 |

Unnamed Tributary to Broad Branch

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|----------------|-----------------|------------|
| CP7 | 0.103 | Downstream | 0.686 | 195.14 | 12.19 | 111.1 | 1083.61 |
| Basin 5G | 0.003 | | 1.273 | | 12.12 | 6.8 | 2530.97 |
| CP8 | 0.105 | Upstream | 0.700 | | 12.19 | 115.1 | 1094.04 |
| CP8 | 0.105 | Downstream | 0.700 | 190.69 | 12.24 | 84.5 | 802.51 |
| Basin 3B | 0.013 | | 2.552 | | 12.12 | 39.5 | 2990.97 |
| Reach 3B | 0.013 | Upstream | 2.552 | 207.06 | 12.12 | 39.5 | 2990.97 |
| Reach 3B | 0.013 | Downstream | 2.547 | 207.06 | 12.12 | 39.5 | 2989.82 |
| Basin 3A2 | 0.200E-03 | | 0.0 | | 1.59 | 0.0 | 0.0 |
| Outlet 1 | 0.013 | Upstream | 2.509 | | 12.12 | 39.5 | 2945.28 |
| Outlet 1 | 0.013 | Downstream | 2.509 | 210.08 | 12.12 | 39.5 | 2945.24 |
| Basin 3A | 0.013 | | 2.697 | | 12.12 | 41.0 | 3136.26 |
| Reach 8.1 | 0.004 | Upstream | 46.029 | 216.16 | 12.15 | 123.2 | 29306.05 |
| Reach 8.1 | 0.004 | Downstream | 45.980 | 216.16 | 12.10 | 123.2 | 29306.05 |
| Outlet 2 | 0.031 | Upstream | 8.540 | | 12.12 | 203.7 | 6634.09 |
| Outlet 2 | 0.031 | Downstream | 8.540 | 210.72 | 12.12 | 203.7 | 6634.07 |
| OUTLET | 0.136 | | 2.471 | | 12.14 | 260.7 | 1917.66 |

| Line Start Time (hr) | Flow (cfs) | Values @ time increment (cfs) | of 0.100 hr (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
|----------------------|------------|-------------------------------|-------------------|-------|-------|-------|-------|
| 9.200 | 0.9 | 1.3 | 1.9 | 2.9 | 2.7 | 2.5 | 2.9 |
| 9.900 | 2.5 | 1.7 | 0.7 | 1.8 | 2.3 | 2.4 | 3.1 |
| 10.600 | 7.5 | 13.3 | 11.0 | 10.8 | 10.2 | 13.0 | 13.6 |
| 11.300 | 14.8 | 17.2 | 18.0 | 29.6 | 37.9 | 51.6 | 81.1 |
| 12.000 | 146.1 | 250.2 | 244.9 | 181.7 | 133.0 | 103.9 | 65.3 |
| 12.700 | 44.9 | 39.5 | 36.6 | 35.7 | 30.0 | 26.3 | 24.8 |
| 13.400 | 23.9 | 23.5 | 18.3 | 14.6 | 13.2 | 12.4 | 12.0 |
| 14.100 | 11.8 | 11.6 | 11.5 | 11.3 | 11.2 | 11.0 | 10.9 |
| 14.800 | 10.8 | 10.7 | 10.5 | 5.9 | 4.4 | 4.3 | 4.2 |
| 15.500 | 4.1 | 4.1 | 4.0 | 4.0 | 4.0 | 4.0 | 3.9 |
| 16.200 | 3.8 | 3.8 | 3.8 | 3.8 | 3.7 | 3.6 | 3.6 |
| 16.900 | 3.5 | 3.5 | 3.5 | 3.5 | 3.4 | 3.4 | 3.4 |
| 17.600 | 3.3 | 3.3 | 3.2 | 3.2 | 3.2 | 3.1 | 3.0 |
| 18.300 | 3.0 | 3.0 | 2.9 | 2.9 | 2.8 | 2.8 | 2.8 |
| 19.000 | 2.8 | 2.7 | 2.7 | 2.6 | 2.6 | 2.6 | 2.5 |
| 19.700 | 2.4 | 2.4 | 2.4 | 2.4 | 2.3 | 2.3 | 2.2 |
| 20.400 | 2.1 | 2.2 | 2.1 | 2.0 | 2.0 | 1.9 | 1.9 |
| 21.100 | 1.9 | 1.8 | 1.8 | 1.8 | 1.7 | 1.7 | 1.7 |
| 21.800 | 1.7 | 1.6 | 1.5 | 1.5 | 1.5 | 1.4 | 1.4 |
| 22.500 | 1.4 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| 23.200 | 1.1 | 1.0 | | | | | |

STORM 25_yr_sm

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|----------------|-----------------|------------|
| Basin 1 | 0.012 | | 3.233 | | 12.12 | 41.2 | 3435.04 |
| CP1 | 0.012 | Upstream | 3.233 | | 12.12 | 41.2 | 3435.04 |
| CP1 | 0.012 | Downstream | 3.232 | 217.25 | 12.12 | 41.2 | 3432.31 |

Unnamed Tributary to Broad Branch

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|----------------|-----------------|-----------------|
| Basin 2 | 0.004 | | 2.415 | | 12.12 | 14.0 | 3289.45 |
| Reach 1 | 0.016 | Upstream | 3.018 | 216.46 | 12.12 | 55.2 | 3394.43 |

Line

| Start Time (hr) | Flow (cfs) | Values (cfs) | @ time (cfs) | increment (cfs) | of 0.100 (cfs) | hr (cfs) | 0.100 hr (cfs) |
|-----------------|------------|--------------|--------------|-----------------|----------------|----------|----------------|
| 10.600 | 1.5 | 1.7 | 1.8 | 1.8 | 1.9 | 2.6 | 2.9 |
| 11.300 | 3.0 | 3.2 | 4.2 | 7.5 | 8.7 | 11.3 | 16.8 |
| 12.000 | 29.6 | 53.1 | 30.7 | 17.6 | 12.8 | 12.0 | 7.7 |
| 12.700 | 6.4 | 6.3 | 6.3 | 6.4 | 4.9 | 4.4 | 4.4 |
| 13.400 | 4.4 | 4.4 | 2.2 | 1.9 | 1.8 | 1.8 | 1.8 |
| 14.100 | 1.8 | 1.8 | 1.7 | 1.7 | 1.7 | 1.6 | 1.7 |
| 14.800 | 1.6 | 1.6 | 1.6 | 1.2 | 1.1 | 1.0 | 1.0 |
| 15.500 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.9 |
| 16.200 | 0.8 | 0.8 | 0.7 | 0.7 | 0.6 | 0.5 | 0.5 |
| 16.900 | 0.4 | 0.4 | 0.3 | 0.3 | 0.2 | 0.1 | |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|----------------|-----------------|-----------------|
| Reach 1 | 0.016 | Downstream | 2.758 | 216.09 | 12.19 | 47.8 | 2943.26 |

Line

| Start Time (hr) | Flow (cfs) | Values (cfs) | @ time (cfs) | increment (cfs) | of 0.100 (cfs) | hr (cfs) | 0.100 hr (cfs) |
|-----------------|------------|--------------|--------------|-----------------|----------------|----------|----------------|
| 11.600 | 3.1 | 7.5 | 9.2 | 12.3 | 19.1 | 33.8 | 47.3 |
| 12.300 | 29.2 | 17.4 | 13.0 | 11.2 | 7.6 | 6.5 | 6.3 |
| 13.000 | 6.3 | 6.0 | 4.8 | 4.4 | 4.4 | 4.4 | 3.9 |
| 13.700 | 2.3 | 1.9 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 14.400 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.6 | 1.6 |
| 15.100 | 1.5 | 1.2 | 1.1 | 1.0 | 1.0 | 1.0 | |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|----------------|-----------------|-----------------|
| Basin 3B1 | 0.006 | | 2.967 | | 12.12 | 21.5 | 3647.95 |
| Reach 1b | 0.022 | Upstream | 2.813 | 217.17 | 12.16 | 63.3 | 2859.28 |
| Reach 1b | 0.022 | Downstream | 2.718 | 216.94 | 12.19 | 60.8 | 2742.84 |
| Basin 3B2 | 0.002 | | 2.066 | | 12.12 | 6.8 | 3647.95 |
| CP2 | 0.024 | Upstream | 2.667 | | 12.18 | 65.1 | 2710.98 |
| CP2 | 0.024 | Downstream | 2.666 | 214.20 | 12.26 | 55.0 | 2290.88 |
| Reach 2 | 0.024 | Upstream | 2.666 | 216.31 | 12.26 | 55.0 | 2290.88 |
| Reach 2 | 0.024 | Downstream | 2.665 | 216.30 | 12.26 | 55.0 | 2290.00 |
| Basin 3A1 | 0.200E-03 | | 0.0 | | 1.19 | 0.0 | 0.0 |
| CP3 | 0.024 | Upstream | 2.643 | 210.83 | 12.26 | 55.0 | 2271.08 |
| CP3 | 0.024 | Downstream | 2.574 | 210.78 | 12.33 | 51.9 | 2145.52 |
| Basin 5A | 0.001 | | 1.356 | | 12.12 | 4.0 | 3208.43 |
| CP4 | 0.025 | Upstream | 2.514 | 207.24 | 12.33 | 53.1 | 2085.86 |

Unnamed Tributary to Broad Branch

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|----------------|-----------------|------------|
| CP4 | 0.025 | Downstream | 2.512 | 207.24 | 12.35 | 53.1 | 2085.44 |
| Basin 5B | 0.002 | | 1.820 | | 12.12 | 7.8 | 3208.43 |
| Basin 4 | 0.065 | | 4.213 | | 12.14 | 217.9 | 3361.30 |

Line

| Start Time (hr) | Flow Values @ time increment of 0.100 hr | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
|-----------------|--|-------|-------|-------|-------|-------|-------|
| 7.600 | 0.5 | 1.1 | 1.2 | 1.2 | 1.3 | 1.3 | 1.4 |
| 8.300 | 1.5 | 1.5 | 1.6 | 1.7 | 1.8 | 1.8 | 1.9 |
| 9.000 | 2.0 | 2.6 | 3.2 | 3.4 | 3.6 | 3.8 | 3.9 |
| 9.700 | 4.1 | 4.3 | 4.5 | 4.6 | 4.8 | 5.0 | 5.2 |
| 10.400 | 5.3 | 5.5 | 8.2 | 10.0 | 10.6 | 10.9 | 11.2 |
| 11.100 | 14.6 | 17.0 | 17.7 | 18.3 | 18.8 | 29.4 | 37.2 |
| 11.800 | 46.5 | 66.7 | 113.1 | 199.9 | 154.8 | 84.4 | 58.3 |
| 12.500 | 50.4 | 36.3 | 27.4 | 26.1 | 26.1 | 26.2 | 21.6 |
| 13.200 | 18.4 | 18.1 | 18.0 | 18.1 | 13.7 | 10.7 | 10.2 |
| 13.900 | 10.0 | 9.9 | 9.8 | 9.7 | 9.6 | 9.5 | 9.4 |
| 14.600 | 9.2 | 9.2 | 9.0 | 9.0 | 8.8 | 7.1 | 6.0 |
| 15.300 | 5.7 | 5.7 | 5.7 | 5.6 | 5.5 | 5.4 | 5.5 |
| 16.000 | 5.3 | 5.3 | 5.2 | 5.3 | 5.2 | 5.0 | 5.1 |
| 16.700 | 5.0 | 4.9 | 4.9 | 4.8 | 4.8 | 4.8 | 4.7 |
| 17.400 | 4.6 | 4.6 | 4.5 | 4.5 | 4.5 | 4.3 | 4.2 |
| 18.100 | 4.2 | 4.2 | 4.2 | 4.1 | 4.0 | 4.0 | 4.0 |
| 18.800 | 3.9 | 3.8 | 3.8 | 3.8 | 3.8 | 3.6 | 3.5 |
| 19.500 | 3.5 | 3.4 | 3.3 | 3.4 | 3.3 | 3.2 | 3.2 |
| 20.200 | 3.2 | 3.2 | 2.9 | 3.0 | 2.9 | 2.8 | 2.8 |
| 20.900 | 2.7 | 2.7 | 2.7 | 2.6 | 2.5 | 2.5 | 2.5 |
| 21.600 | 2.4 | 2.4 | 2.2 | 2.1 | 2.1 | 2.1 | 2.1 |
| 22.300 | 2.0 | 1.9 | 1.9 | 1.8 | 1.8 | 1.7 | 1.7 |
| 23.000 | 1.7 | 1.5 | 1.4 | 1.4 | 1.4 | 1.4 | 1.3 |
| 23.700 | 1.2 | 1.2 | 1.1 | 1.1 | 0.7 | 0.2 | |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|----------------|-----------------|------------|
| CP9 | 0.065 | Upstream | 4.213 | | 12.14 | 217.9 | 3361.30 |
| CP9 | 0.065 | Downstream | 4.211 | 216.46 | 12.14 | 215.1 | 3316.82 |
| CP9A | 0.065 | Upstream | 4.211 | 217.24 | 12.14 | 215.1 | 3316.82 |
| CP9A | 0.061 | Downstream | 0.264 | 216.46 | 12.14 | 91.8 | 1514.77 |
| Reach 8 | 0.061 | Upstream | 0.264 | 212.49 | 12.14 | 91.8 | 1514.77 |
| Reach 8 | 0.061 | Downstream | 0.263 | 212.45 | 12.16 | 89.1 | 1468.74 |
| CP5 | 0.089 | Upstream | 0.953 | 195.36 | 12.16 | 135.8 | 1533.95 |
| CP5 | 0.089 | Downstream | 0.952 | 195.36 | 12.18 | 135.6 | 1531.16 |
| Basin 5F1 | 0.003 | | 1.866 | | 12.12 | 8.4 | 3208.43 |
| Basin 5C | 0.001 | | 1.541 | | 12.12 | 4.6 | 3208.43 |
| CP10 | 0.001 | Upstream | 1.541 | 206.13 | 12.12 | 4.6 | 3208.43 |
| CP10 | 0.001 | Downstream | 1.467 | 206.13 | 12.14 | 4.6 | 3206.30 |
| Basin 5C1 | 0.001 | | 1.548 | | 12.12 | 4.6 | 3208.43 |
| CP11 | 0.003 | Upstream | 1.508 | 206.27 | 12.12 | 9.1 | 3188.35 |
| CP11 | 0.003 | Downstream | 1.471 | 206.27 | 12.15 | 9.1 | 3179.49 |

Unnamed Tributary to Broad Branch

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|----------------|-----------------|-----------------|
| Basin 5D | 0.003 | | 2.082 | | 12.12 | 9.0 | 3208.43 |
| CP12 | 0.006 | Upstream | 1.772 | 206.52 | 12.13 | 17.6 | 3106.34 |
| CP12 | 0.006 | Downstream | 1.766 | 206.52 | 12.14 | 17.6 | 3106.34 |
| CP6 | 0.097 | Upstream | 1.024 | 195.54 | 12.17 | 157.3 | 1624.65 |
| CP6 | 0.097 | Downstream | 1.024 | 195.54 | 12.18 | 157.2 | 1623.21 |
| Basin 5F3 | 0.002 | | 1.679 | | 12.12 | 6.0 | 3208.43 |
| Basin 5E | 0.002 | | 1.746 | | 12.12 | 6.8 | 3208.43 |
| CP13 | 0.002 | Upstream | 1.746 | 206.20 | 12.12 | 6.8 | 3208.43 |
| CP13 | 0.002 | Downstream | 1.698 | 206.20 | 12.13 | 6.8 | 3203.30 |
| Basin 5F2 | 0.002 | | 1.653 | | 12.12 | 5.6 | 3208.43 |
| CP14 | 0.004 | Upstream | 1.675 | 206.36 | 12.12 | 12.3 | 3191.29 |
| CP14 | 0.004 | Downstream | 1.664 | 206.36 | 12.13 | 12.3 | 3191.29 |
| CP7 | 0.103 | Upstream | 1.060 | 195.66 | 12.17 | 171.4 | 1671.54 |
| CP7 | 0.103 | Downstream | 1.060 | 195.66 | 12.18 | 171.0 | 1667.70 |
| Basin 5G | 0.003 | | 2.061 | | 12.12 | 8.6 | 3208.43 |
| CP8 | 0.105 | Upstream | 1.085 | | 12.18 | 176.6 | 1678.41 |
| CP8 | 0.105 | Downstream | 1.085 | 191.59 | 12.20 | 171.0 | 1624.78 |
| Basin 3B | 0.013 | | 3.685 | | 12.12 | 48.2 | 3647.95 |
| Reach 3B | 0.013 | Upstream | 3.685 | 207.18 | 12.12 | 48.2 | 3647.95 |
| Reach 3B | 0.013 | Downstream | 3.644 | 207.18 | 12.12 | 48.2 | 3647.29 |
| Basin 3A2 | 0.2000E-03 | | 0.0 | | 1.19 | 0.0 | 0.0 |
| Outlet 1 | 0.013 | Upstream | 3.590 | | 12.12 | 48.2 | 3592.95 |
| Outlet 1 | 0.013 | Downstream | 3.590 | 210.12 | 12.12 | 48.2 | 3592.91 |
| Basin 3A | 0.013 | | 3.889 | | 12.12 | 49.5 | 3781.77 |
| Reach 8.1 | 0.004 | Upstream | 61.138 | 216.46 | 12.14 | 123.2 | 29306.76 |
| Reach 8.1 | 0.004 | Downstream | 61.138 | 216.46 | 12.06 | 123.2 | 29306.76 |
| Outlet 2 | 0.031 | Upstream | 11.595 | | 12.12 | 220.8 | 7191.32 |
| Outlet 2 | 0.031 | Downstream | 11.595 | 210.79 | 12.12 | 220.8 | 7191.30 |
| OUTLET | 0.136 | | 3.459 | | 12.20 | 350.6 | 2579.01 |

| Line Start Time (hr) | Flow Values @ time increment of 0.100 hr (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
|----------------------|--|-------|-------|-------|-------|-------|-------|
| 7.700 | 1.0 | 1.1 | 1.2 | 1.3 | 1.3 | 1.4 | 1.5 |
| 8.400 | 1.5 | 1.6 | 1.7 | 1.8 | 1.8 | 1.9 | 2.0 |
| 9.100 | 2.5 | 3.1 | 3.4 | 3.6 | 3.7 | 4.9 | 5.1 |
| 9.800 | 5.3 | 5.6 | 6.3 | 6.5 | 6.7 | 6.9 | 7.2 |
| 10.500 | 7.7 | 11.7 | 14.6 | 15.4 | 15.8 | 16.3 | 21.2 |
| 11.200 | 24.7 | 25.6 | 26.4 | 27.1 | 43.3 | 58.5 | 76.4 |
| 11.900 | 118.4 | 195.3 | 282.0 | 348.6 | 227.4 | 161.1 | 142.6 |
| 12.600 | 101.3 | 62.4 | 53.3 | 49.9 | 48.5 | 39.4 | 34.5 |
| 13.300 | 33.0 | 32.1 | 31.8 | 25.4 | 20.7 | 18.5 | 16.8 |
| 14.000 | 16.1 | 15.8 | 15.6 | 15.3 | 15.2 | 15.0 | 14.7 |
| 14.700 | 14.7 | 14.4 | 14.4 | 14.1 | 11.7 | 10.1 | 9.5 |
| 15.400 | 9.3 | 9.1 | 9.0 | 7.7 | 7.6 | 7.8 | 7.5 |
| 16.100 | 7.5 | 7.4 | 7.5 | 7.4 | 7.1 | 7.1 | 7.1 |
| 16.800 | 7.0 | 6.9 | 6.5 | 6.4 | 4.8 | 4.7 | 4.6 |
| 17.500 | 4.6 | 4.6 | 4.5 | 4.5 | 4.4 | 4.2 | 4.2 |
| 18.200 | 4.2 | 4.2 | 4.1 | 4.0 | 4.0 | 4.0 | 3.9 |
| 18.900 | 3.8 | 3.8 | 3.8 | 3.8 | 3.7 | 3.6 | 3.5 |
| 19.600 | 3.4 | 3.3 | 3.4 | 3.3 | 3.2 | 3.2 | 3.2 |

Unnamed Tributary to Broad Branch

| Line | Start Time (hr) | Flow Values @ time increment of 0.100 hr | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
|------|--------------------|--|-------|-------|-------|-------|-------|-------|
| | 20.300 | 3.2 | 3.0 | 3.0 | 2.9 | 2.8 | 2.8 | 2.7 |
| | 21.000 | 2.7 | 2.7 | 2.6 | 2.5 | 2.5 | 2.5 | 2.4 |
| | 21.700 | 2.4 | 2.3 | 2.1 | 2.1 | 2.1 | 2.1 | 2.0 |
| | 22.400 | 1.9 | 1.9 | 1.8 | 1.8 | 1.8 | 1.7 | 1.7 |
| | 23.100 | 1.6 | 1.4 | 1.4 | 1.4 | 1.4 | 1.3 | 1.2 |
| | 23.800 | 1.2 | 1.1 | 1.1 | | | | |

STORM 50_yr_sm

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|----------------|-----------------|-----------------|
| Basin 1 | 0.012 | | 4.364 | | 12.12 | 46.8 | 3903.05 |
| CP1 | 0.012 | Upstream | 4.364 | | 12.12 | 46.8 | 3903.05 |
| CP1 | 0.012 | Downstream | 4.363 | 217.33 | 12.12 | 46.8 | 3899.36 |
| Basin 2 | 0.004 | | 3.099 | | 12.12 | 16.0 | 3763.06 |
| Reach 1 | 0.016 | Upstream | 4.032 | 217.12 | 12.12 | 62.8 | 3863.71 |

| Line | Start Time (hr) | Flow Values @ time increment of 0.100 hr | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
|------|--------------------|--|-------|-------|-------|-------|-------|-------|
| | 9.700 | 0.3 | 1.1 | 1.1 | 1.1 | 1.2 | 1.2 | 1.2 |
| | 10.400 | 1.3 | 1.3 | 2.1 | 2.4 | 2.5 | 2.5 | 2.6 |
| | 11.100 | 4.8 | 5.2 | 5.4 | 5.6 | 5.7 | 9.8 | 11.3 |
| | 11.800 | 14.5 | 20.7 | 35.3 | 60.7 | 35.6 | 21.0 | 15.5 |
| | 12.500 | 14.5 | 9.3 | 7.8 | 7.7 | 7.7 | 7.8 | 6.0 |
| | 13.200 | 5.4 | 5.4 | 5.4 | 5.4 | 2.7 | 2.3 | 2.3 |
| | 13.900 | 2.2 | 2.2 | 2.2 | 2.1 | 2.2 | 2.1 | 2.1 |
| | 14.600 | 2.1 | 2.0 | 2.0 | 2.0 | 2.0 | 1.5 | 1.3 |
| | 15.300 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 |
| | 16.000 | 1.2 | 1.2 | 1.2 | 1.2 | 1.1 | 1.2 | 1.1 |
| | 16.700 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.0 |
| | 17.400 | 1.1 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|----------------|-----------------|-----------------|
| Reach 1 | 0.016 | Downstream | 3.743 | 216.40 | 12.19 | 53.9 | 3318.00 |

| Line | Start Time (hr) | Flow Values @ time increment of 0.100 hr | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
|------|--------------------|--|-------|-------|-------|-------|-------|-------|
| | 11.300 | 4.9 | 5.4 | 5.6 | 6.5 | 9.7 | 11.8 | 15.5 |
| | 12.000 | 23.1 | 39.2 | 53.4 | 34.8 | 21.3 | 15.9 | 13.6 |
| | 12.700 | 9.5 | 8.0 | 7.8 | 7.7 | 7.4 | 6.0 | 5.5 |
| | 13.400 | 5.4 | 5.4 | 5.0 | 3.1 | 2.4 | 2.3 | 2.2 |
| | 14.100 | 2.2 | 2.2 | 2.2 | 2.2 | 2.1 | 2.1 | 2.1 |
| | 14.800 | 2.0 | 2.0 | 2.0 | 1.9 | 1.5 | 1.3 | 1.3 |

Unnamed Tributary to Broad Branch

| Line | Start Time (hr) | Flow Values @ time increment of 0.100 hr | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
|--------------------------|-----------------------|--|--------------------|----------------|----------------|-----------------|----------------------|-------|
| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Peak Flow Rate (csm) | |
| Basin 3B1 | 0.006 | | 3.992 | | 12.12 | 24.2 | 4101.50 | |
| Reach 1b | 0.022 | Upstream | 3.809 | 218.03 | 12.15 | 71.6 | 3232.31 | |
| Reach 1b | 0.022 | Downstream | 3.717 | 217.58 | 12.19 | 67.8 | 3061.36 | |
| Basin 3B2 | 0.002 | | 2.511 | | 12.12 | 7.6 | 4101.50 | |
| CP2 | 0.024 | Upstream | 3.623 | | 12.18 | 72.7 | 3026.15 | |
| CP2 | 0.024 | Downstream | 3.622 | 214.75 | 12.27 | 60.5 | 2517.79 | |
| Reach 2 | 0.024 | Upstream | 3.622 | 216.89 | 12.27 | 60.5 | 2517.79 | |
| Reach 2 | 0.024 | Downstream | 3.621 | 216.89 | 12.27 | 60.5 | 2517.77 | |
| Basin 3A1 | 0.200E-03 | | 0.0 | | 0.98 | 0.0 | 0.0 | |
| CP3 | 0.024 | Upstream | 3.592 | 210.93 | 12.27 | 60.5 | 2496.97 | |
| CP3 | 0.024 | Downstream | 3.424 | 210.88 | 12.34 | 57.4 | 2370.83 | |
| Basin 5A | 0.001 | | 1.932 | | 12.12 | 4.6 | 3695.35 | |
| CP4 | 0.025 | Upstream | 3.350 | 207.31 | 12.34 | 58.8 | 2307.99 | |
| CP4 | 0.025 | Downstream | 3.349 | 207.31 | 12.36 | 58.8 | 2307.65 | |
| Basin 5B | 0.002 | | 2.544 | | 12.12 | 9.0 | 3695.35 | |
| Basin 4 | 0.065 | | 5.237 | | 12.13 | 246.9 | 3808.11 | |

| Line | Start Time (hr) | Flow Values @ time increment of 0.100 hr | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
|--------|--------------------|--|-------|-------|-------|-------|-------|-------|
| 6.600 | 1.1 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 | |
| 7.300 | 1.6 | 1.7 | 1.8 | 1.9 | 2.0 | 2.0 | 2.2 | |
| 8.000 | 2.3 | 2.3 | 2.4 | 2.5 | 2.6 | 2.8 | 2.8 | |
| 8.700 | 2.9 | 3.0 | 3.1 | 3.2 | 4.2 | 5.0 | 5.3 | |
| 9.400 | 5.5 | 5.7 | 5.9 | 6.1 | 6.4 | 6.5 | 6.8 | |
| 10.100 | 7.0 | 7.2 | 7.4 | 7.7 | 7.9 | 11.5 | 13.9 | |
| 10.800 | 14.6 | 15.0 | 15.3 | 19.7 | 22.7 | 23.6 | 24.3 | |
| 11.500 | 24.7 | 37.9 | 47.6 | 58.6 | 81.8 | 133.9 | 227.8 | |
| 12.200 | 176.3 | 98.9 | 69.6 | 60.4 | 43.7 | 33.3 | 31.9 | |
| 12.900 | 31.7 | 31.8 | 26.3 | 22.6 | 22.2 | 22.0 | 22.0 | |
| 13.600 | 16.8 | 13.3 | 12.7 | 12.4 | 12.2 | 12.2 | 11.9 | |
| 14.300 | 11.9 | 11.8 | 11.6 | 11.4 | 11.3 | 11.2 | 11.0 | |
| 15.000 | 10.9 | 8.8 | 7.5 | 7.1 | 7.0 | 7.0 | 7.0 | |
| 15.700 | 7.0 | 6.8 | 6.7 | 6.7 | 6.6 | 6.6 | 6.6 | |
| 16.400 | 6.3 | 6.4 | 6.3 | 6.3 | 6.1 | 6.1 | 6.2 | |
| 17.100 | 6.0 | 5.9 | 5.7 | 5.8 | 5.7 | 5.6 | 5.6 | |
| 17.800 | 5.5 | 5.5 | 5.5 | 5.4 | 5.2 | 5.2 | 5.2 | |
| 18.500 | 5.1 | 4.9 | 5.0 | 4.9 | 4.8 | 4.6 | 4.7 | |
| 19.200 | 4.6 | 4.5 | 4.5 | 4.4 | 4.4 | 4.3 | 4.1 | |
| 19.900 | 4.1 | 4.1 | 4.0 | 4.0 | 4.0 | 3.8 | 3.7 | |
| 20.600 | 3.7 | 3.7 | 3.5 | 3.4 | 3.4 | 3.4 | 3.4 | |
| 21.300 | 3.2 | 3.1 | 3.1 | 3.0 | 2.8 | 3.0 | 2.8 | |

Unnamed Tributary to Broad Branch

| Line Start Time (hr) | Flow (cfs) | Flow (cfs) | Flow (cfs) | Flow (cfs) | Flow (cfs) | Flow (cfs) | Flow (cfs) |
|--------------------------------|-----------------------------|--------------------------------|--------------------------|-------------------|----------------------|-----------------------|-----------------------|
| 22.000 | 2.7 | 2.7 | 2.6 | 2.6 | 2.5 | 2.4 | 2.4 |
| 22.700 | 2.2 | 2.2 | 2.3 | 2.1 | 2.0 | 2.0 | 1.8 |
| 23.400 | 1.7 | 1.7 | 1.7 | 1.7 | 1.5 | 1.5 | 1.4 |
| 24.100 | 0.6 | | | | | | |
| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Peak Rate (cfs) | Flow Rate (csm) |
| CP9 | 0.065 | Upstream | 5.237 | | 12.13 | 246.9 | 3808.11 |
| CP9 | 0.065 | Downstream | 5.235 | 216.67 | 12.15 | 243.3 | 3752.04 |
| CP9A | 0.065 | Upstream | 5.235 | 217.38 | 12.15 | 243.3 | 3752.04 |
| CP9A | 0.061 | Downstream | 0.415 | 216.67 | 12.15 | 120.1 | 1980.21 |
| Reach 8 | 0.061 | Upstream | 0.415 | 212.80 | 12.15 | 120.1 | 1980.21 |
| Reach 8 | 0.061 | Downstream | 0.415 | 212.77 | 12.16 | 117.3 | 1935.06 |
| CP5 | 0.089 | Upstream | 1.317 | 195.65 | 12.16 | 169.9 | 1919.57 |
| CP5 | 0.089 | Downstream | 1.317 | 195.64 | 12.17 | 169.6 | 1916.08 |
| Basin 5F1 | 0.003 | | 2.556 | | 12.12 | 9.7 | 3695.35 |
| Basin 5C | 0.001 | | 1.997 | | 12.12 | 5.3 | 3695.35 |
| CP10 | 0.001 | Upstream | 1.997 | 206.16 | 12.12 | 5.3 | 3695.35 |
| CP10 | 0.001 | Downstream | 1.921 | 206.16 | 12.13 | 5.3 | 3688.57 |
| Basin 5C1 | 0.001 | | 2.004 | | 12.12 | 5.3 | 3695.35 |
| CP11 | 0.003 | Upstream | 1.963 | 206.31 | 12.13 | 10.5 | 3673.97 |
| CP11 | 0.003 | Downstream | 1.919 | 206.31 | 12.15 | 10.5 | 3666.48 |
| Basin 5D | 0.003 | | 2.577 | | 12.12 | 10.4 | 3695.35 |
| CP12 | 0.006 | Upstream | 2.245 | 206.60 | 12.13 | 20.3 | 3584.64 |
| CP12 | 0.006 | Downstream | 2.238 | 206.60 | 12.14 | 20.3 | 3581.00 |
| CP6 | 0.097 | Upstream | 1.404 | 195.83 | 12.17 | 195.3 | 2017.34 |
| CP6 | 0.097 | Downstream | 1.404 | 195.83 | 12.17 | 195.1 | 2014.87 |
| Basin 5F3 | 0.002 | | 2.189 | | 12.12 | 7.0 | 3695.35 |
| Basin 5E | 0.002 | | 2.257 | | 12.12 | 7.8 | 3695.35 |
| CP13 | 0.002 | Upstream | 2.257 | 206.23 | 12.12 | 7.8 | 3695.35 |
| CP13 | 0.002 | Downstream | 2.227 | 206.23 | 12.13 | 7.8 | 3691.10 |
| Basin 5F2 | 0.002 | | 2.163 | | 12.12 | 6.5 | 3695.35 |
| CP14 | 0.004 | Upstream | 2.198 | 206.42 | 12.13 | 14.2 | 3677.33 |
| CP14 | 0.004 | Downstream | 2.195 | 206.42 | 12.13 | 14.2 | 3674.47 |
| CP7 | 0.103 | Upstream | 1.448 | 195.91 | 12.17 | 212.0 | 2067.15 |
| CP7 | 0.103 | Downstream | 1.448 | 195.91 | 12.18 | 211.7 | 2063.56 |
| Basin 5G | 0.003 | | 2.563 | | 12.12 | 9.9 | 3695.35 |
| CP8 | 0.105 | Upstream | 1.476 | | 12.18 | 218.3 | 2074.03 |
| CP8 | 0.105 | Downstream | 1.476 | 191.71 | 12.19 | 217.1 | 2063.34 |
| Basin 3B | 0.013 | | 4.803 | | 12.12 | 54.2 | 4101.50 |
| Reach 3B | 0.013 | Upstream | 4.803 | 207.25 | 12.12 | 54.2 | 4101.50 |
| Reach 3B | 0.013 | Downstream | 4.776 | 207.25 | 12.12 | 54.2 | 4097.71 |
| Basin 3A2 | 0.200E-03 | | 0.0 | | 0.98 | 0.0 | 0.0 |
| Outlet 1 | 0.013 | Upstream | 4.705 | | 12.12 | 54.2 | 4036.65 |
| Outlet 1 | 0.013 | Downstream | 4.705 | 210.14 | 12.12 | 54.2 | 4036.64 |
| Basin 3A | 0.013 | | 4.982 | | 12.12 | 55.1 | 4215.20 |
| Reach 8.1 | 0.004 | Upstream | 74.753 | 216.67 | 12.15 | 123.2 | 29307.24 |
| Reach 8.1 | 0.004 | Downstream | 74.655 | 216.67 | 12.04 | 123.2 | 29307.24 |
| Outlet 2 | 0.031 | Upstream | 14.397 | | 12.12 | 232.5 | 7570.62 |
| Outlet 2 | 0.031 | Downstream | 14.396 | 210.83 | 12.12 | 232.5 | 7570.60 |

Unnamed Tributary to Broad Branch

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Peak Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|---------------------|-----------------|-------------------|-----------------|----------------------|
| OUTLET | 0.136 | | 4.394 | | 12.17 | 417.2 | 3069.08 |
| Line | | | | | | | |
| Start Time (hr) | Flow (cfs) | Flow Values (cfs) | Values @ time (cfs) | increment (cfs) | of 0.100 hr (cfs) | (cfs) | (cfs) |
| 6.600 | 1.1 | 1.3 | 1.1 | 0.9 | 0.8 | 1.3 | 1.3 |
| 7.300 | 1.5 | 1.8 | 2.4 | 2.5 | 2.1 | 2.3 | 2.0 |
| 8.000 | 1.9 | 1.4 | 1.8 | 2.3 | 2.2 | 2.9 | 3.3 |
| 8.700 | 4.2 | 3.3 | 3.1 | 3.3 | 4.7 | 5.6 | 4.4 |
| 9.400 | 7.3 | 8.1 | 8.9 | 9.4 | 11.1 | 12.2 | 10.0 |
| 10.100 | 10.1 | 9.0 | 9.7 | 8.4 | 9.0 | 16.6 | 20.1 |
| 10.800 | 21.6 | 22.0 | 22.7 | 28.6 | 32.7 | 33.9 | 34.7 |
| 11.500 | 35.4 | 59.1 | 78.3 | 105.7 | 150.7 | 227.1 | 303.2 |
| 12.200 | 398.1 | 268.6 | 187.8 | 163.8 | 132.2 | 85.6 | 68.3 |
| 12.900 | 63.1 | 61.3 | 51.2 | 42.3 | 40.5 | 39.2 | 38.8 |
| 13.600 | 31.1 | 25.7 | 23.6 | 21.9 | 21.0 | 20.8 | 20.2 |
| 14.300 | 20.1 | 20.0 | 19.6 | 19.4 | 19.1 | 18.9 | 18.6 |
| 15.000 | 18.5 | 15.2 | 12.8 | 11.9 | 11.4 | 11.2 | 11.2 |
| 15.700 | 11.2 | 11.0 | 10.8 | 10.8 | 10.5 | 10.6 | 10.5 |
| 16.400 | 10.1 | 10.1 | 10.0 | 10.1 | 9.8 | 9.7 | 9.8 |
| 17.100 | 9.6 | 9.5 | 9.2 | 9.3 | 9.2 | 9.0 | 9.0 |
| 17.800 | 7.8 | 7.8 | 7.7 | 7.6 | 7.3 | 7.4 | 7.3 |
| 18.500 | 7.2 | 6.2 | 6.6 | 6.1 | 4.8 | 4.7 | 4.7 |
| 19.200 | 4.7 | 4.5 | 4.5 | 4.4 | 4.4 | 4.4 | 4.1 |
| 19.900 | 4.1 | 4.1 | 4.0 | 4.0 | 4.0 | 3.8 | 3.7 |
| 20.600 | 3.7 | 3.7 | 3.6 | 3.4 | 3.4 | 3.4 | 3.4 |
| 21.300 | 3.3 | 3.1 | 3.1 | 3.0 | 2.9 | 3.0 | 2.8 |
| 22.000 | 2.7 | 2.7 | 2.6 | 2.6 | 2.5 | 2.4 | 2.4 |
| 22.700 | 2.3 | 2.2 | 2.2 | 2.1 | 2.0 | 2.0 | 1.9 |
| 23.400 | 1.7 | 1.7 | 1.7 | 1.7 | 1.6 | 1.5 | 1.4 |

STORM 100_yr_sm

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Peak Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|---------------------|-----------------|-------------------|-----------------|----------------------|
| Basin 1 | 0.012 | | 5.586 | | 12.12 | 52.9 | 4406.54 |
| CP1 | 0.012 | Upstream | 5.586 | | 12.12 | 52.9 | 4406.54 |
| CP1 | 0.012 | Downstream | 5.585 | 217.42 | 12.12 | 52.9 | 4406.04 |
| Basin 2 | 0.004 | | 3.873 | | 12.12 | 18.2 | 4277.45 |
| Reach 1 | 0.016 | Upstream | 5.138 | 217.96 | 12.12 | 71.0 | 4372.02 |
| Line | | | | | | | |
| Start Time (hr) | Flow (cfs) | Flow Values (cfs) | Values @ time (cfs) | increment (cfs) | of 0.100 hr (cfs) | (cfs) | (cfs) |
| 9.100 | 1.1 | 1.2 | 1.3 | 1.3 | 1.4 | 1.4 | 1.5 |
| 9.800 | 1.5 | 1.6 | 1.6 | 1.7 | 1.7 | 1.7 | 1.8 |
| 10.500 | 1.8 | 2.9 | 4.3 | 4.4 | 4.5 | 4.6 | 6.2 |
| 11.200 | 6.8 | 7.0 | 7.1 | 7.2 | 12.1 | 13.9 | 17.4 |

Unnamed Tributary to Broad Branch

| Line Start Time (hr) | Flow (cfs) | Values @ time (cfs) | increment of (cfs) | 0.100 hr | Flow (cfs) | Flow (cfs) | Flow (cfs) |
|----------------------------|---------------|------------------------|-----------------------|----------|---------------|---------------|---------------|
| 11.900 | 24.6 | 41.0 | 68.8 | 40.5 | 24.0 | 18.0 | 16.8 |
| 12.600 | 10.9 | 9.2 | 9.2 | 9.1 | 9.2 | 7.1 | 6.5 |
| 13.300 | 6.4 | 6.5 | 6.5 | 4.4 | 2.9 | 2.8 | 2.7 |
| 14.000 | 2.8 | 2.7 | 2.7 | 2.7 | 2.6 | 2.6 | 2.5 |
| 14.700 | 2.5 | 2.5 | 2.4 | 2.4 | 1.8 | 1.6 | 1.6 |
| 15.400 | 1.6 | 1.6 | 1.6 | 1.6 | 1.5 | 1.6 | 1.5 |
| 16.100 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.4 |
| 16.800 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.3 | 1.3 |
| 17.500 | 1.3 | 1.3 | 1.3 | 1.2 | 1.3 | 1.2 | 1.2 |
| 18.200 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 |
| 18.900 | 1.1 | 1.1 | 1.1 | 1.1 | 1.0 | 1.0 | 1.0 |
| 19.600 | 1.0 | 1.0 | 0.9 | 0.9 | 0.8 | 0.8 | 0.7 |
| 20.300 | 0.7 | 0.6 | 0.6 | 0.5 | 0.5 | 0.4 | 0.3 |
| 21.000 | 0.3 | 0.2 | 0.2 | 0.1 | | | |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Flow Rate (csm) |
|--------------------------------|-----------------------------|---------------------------|--------------------------|-------------------|----------------------|-----------------------|-----------------------|
| Reach 1 | 0.016 | Downstream | 4.635 | 216.79 | 12.19 | 59.2 | 3641.39 |

| Line Start Time (hr) | Flow (cfs) | Values @ time (cfs) | increment of (cfs) | 0.100 hr | Flow (cfs) | Flow (cfs) | Flow (cfs) |
|----------------------------|---------------|------------------------|-----------------------|----------|---------------|---------------|---------------|
| 11.300 | 6.0 | 6.9 | 7.1 | 8.1 | 11.7 | 14.2 | 18.2 |
| 12.000 | 26.5 | 43.5 | 58.9 | 41.6 | 25.9 | 19.0 | 16.0 |
| 12.700 | 11.6 | 9.6 | 9.2 | 9.2 | 8.8 | 7.3 | 6.6 |
| 13.400 | 6.5 | 6.5 | 6.1 | 4.6 | 3.3 | 2.8 | 2.7 |
| 14.100 | 2.7 | 2.7 | 2.7 | 2.6 | 2.6 | 2.6 | 2.5 |
| 14.800 | 2.5 | 2.5 | 2.4 | 2.3 | 1.9 | 1.7 | 1.6 |
| 15.500 | 1.6 | 1.6 | 1.6 | 1.6 | 1.5 | 1.6 | 1.5 |
| 16.200 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.4 |
| 16.900 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.3 | 1.3 |
| 17.600 | 1.3 | 1.3 | 1.3 | 1.2 | 1.3 | 1.2 | 1.2 |
| 18.300 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 |
| 19.000 | 1.1 | 1.1 | 1.1 | 1.1 | 1.0 | 1.0 | |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Flow Rate (csm) |
|--------------------------------|-----------------------------|---------------------------|--------------------------|-------------------|----------------------|-----------------------|-----------------------|
| Basin 3B1 | 0.006 | | 4.766 | | 12.12 | 27.1 | 4590.27 |
| Reach 1b | 0.022 | Upstream | 4.670 | 218.89 | 12.15 | 78.9 | 3562.10 |
| Reach 1b | 0.022 | Downstream | 4.539 | 218.28 | 12.20 | 73.7 | 3327.76 |
| Basin 3B2 | 0.002 | | 3.277 | | 12.12 | 8.5 | 4590.27 |
| CP2 | 0.024 | Upstream | 4.442 | | 12.18 | 79.0 | 3290.57 |
| CP2 | 0.024 | Downstream | 4.441 | 215.18 | 12.29 | 64.3 | 2678.84 |
| Reach 2 | 0.024 | Upstream | 4.441 | 217.28 | 12.29 | 64.3 | 2678.84 |
| Reach 2 | 0.024 | Downstream | 4.440 | 217.28 | 12.30 | 64.3 | 2678.81 |
| Basin 3A1 | 0.200E-03 | | 0.245 | | 12.12 | 1.0 | 5052.17 |
| CP3 | 0.024 | Upstream | 4.405 | 211.00 | 12.30 | 64.3 | 2656.68 |

Unnamed Tributary to Broad Branch

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|----------------|-----------------|------------|
| CP3 | 0.024 | Downstream | 4.264 | 210.96 | 12.37 | 62.3 | 2573.38 |
| Basin 5A | 0.001 | | 2.405 | | 12.12 | 5.3 | 4216.19 |
| CP4 | 0.025 | Upstream | 4.172 | 207.35 | 12.37 | 63.8 | 2503.91 |
| CP4 | 0.025 | Downstream | 4.170 | 207.35 | 12.38 | 63.8 | 2503.33 |
| Basin 5B | 0.002 | | 3.063 | | 12.12 | 10.2 | 4216.19 |
| Basin 4 | 0.065 | | 6.398 | | 12.13 | 277.2 | 4274.71 |

| Line Start Time (hr) | Flow Values @ time increment of 0.100 hr | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
|----------------------|--|-------|-------|-------|-------|-------|-------|
| 5.600 | 1.1 | 1.2 | 1.2 | 1.4 | 1.5 | 1.6 | 1.7 |
| 6.300 | 1.8 | 1.9 | 2.0 | 2.1 | 2.2 | 2.3 | 2.4 |
| 7.000 | 2.6 | 2.6 | 2.7 | 2.9 | 3.0 | 3.1 | 3.2 |
| 7.700 | 3.3 | 3.4 | 3.6 | 3.6 | 3.7 | 4.0 | 4.0 |
| 8.400 | 4.1 | 4.3 | 4.4 | 4.4 | 4.6 | 4.7 | 4.8 |
| 9.100 | 6.3 | 7.3 | 7.7 | 8.0 | 8.3 | 8.4 | 8.7 |
| 9.800 | 9.0 | 9.3 | 9.4 | 9.8 | 10.0 | 10.2 | 10.5 |
| 10.500 | 10.8 | 15.3 | 18.5 | 19.2 | 19.6 | 19.9 | 25.3 |
| 11.200 | 28.9 | 30.0 | 30.4 | 30.8 | 46.4 | 57.6 | 69.8 |
| 11.900 | 96.1 | 154.4 | 257.1 | 198.8 | 112.5 | 79.8 | 69.7 |
| 12.600 | 50.8 | 38.9 | 37.5 | 37.3 | 37.5 | 31.1 | 26.9 |
| 13.300 | 26.3 | 26.3 | 26.3 | 20.2 | 16.1 | 15.4 | 15.0 |
| 14.000 | 15.1 | 14.8 | 14.6 | 14.5 | 14.4 | 14.1 | 13.9 |
| 14.700 | 13.9 | 13.7 | 13.4 | 13.3 | 10.8 | 9.2 | 9.0 |
| 15.400 | 8.8 | 8.6 | 8.6 | 8.6 | 8.4 | 8.5 | 8.4 |
| 16.100 | 8.1 | 8.2 | 8.1 | 8.0 | 8.0 | 8.0 | 7.8 |
| 16.800 | 7.7 | 7.7 | 7.5 | 7.5 | 7.5 | 7.3 | 7.1 |
| 17.500 | 7.2 | 7.1 | 7.0 | 6.8 | 6.9 | 6.8 | 6.7 |
| 18.200 | 6.7 | 6.5 | 6.4 | 6.3 | 6.3 | 6.2 | 6.2 |
| 18.900 | 6.1 | 5.8 | 5.9 | 5.8 | 5.7 | 5.7 | 5.5 |
| 19.600 | 5.6 | 5.5 | 5.4 | 5.2 | 5.2 | 5.1 | 4.8 |
| 20.300 | 4.9 | 4.8 | 4.9 | 4.6 | 4.6 | 4.7 | 4.5 |
| 21.000 | 4.4 | 4.2 | 4.2 | 4.1 | 4.0 | 4.0 | 3.8 |
| 21.700 | 3.7 | 3.7 | 3.7 | 3.7 | 3.5 | 3.4 | 3.4 |
| 22.400 | 3.2 | 3.0 | 3.2 | 3.0 | 2.9 | 2.8 | 2.7 |
| 23.100 | 2.7 | 2.7 | 2.5 | 2.4 | 2.4 | 2.3 | 2.2 |
| 23.800 | 2.0 | 2.1 | 2.0 | 0.8 | | | |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|----------------|-----------------|------------|
| CP9 | 0.065 | Upstream | 6.398 | | 12.13 | 277.2 | 4274.71 |
| CP9 | 0.065 | Downstream | 6.397 | 216.89 | 12.14 | 273.8 | 4222.95 |
| CP9A | 0.065 | Upstream | 6.397 | 217.54 | 12.14 | 273.8 | 4222.95 |
| CP9A | 0.061 | Downstream | 0.598 | 216.88 | 12.14 | 150.6 | 2483.68 |
| Reach 8 | 0.061 | Upstream | 0.598 | 213.11 | 12.14 | 150.6 | 2483.68 |
| Reach 8 | 0.061 | Downstream | 0.598 | 213.07 | 12.15 | 147.2 | 2427.35 |
| CP5 | 0.089 | Upstream | 1.693 | 195.88 | 12.16 | 205.2 | 2317.61 |
| CP5 | 0.089 | Downstream | 1.692 | 195.88 | 12.17 | 204.8 | 2312.94 |
| Basin 5F1 | 0.003 | | 3.491 | | 12.12 | 11.0 | 4216.19 |

Unnamed Tributary to Broad Branch

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Elevation (ft) | Peak Time (hr) | Flow Rate (cfs) | Peak Flow Rate (csm) |
|--------------------------|-----------------------|--------------------------|--------------------|----------------|----------------|-----------------|----------------------|
| Basin 5C | 0.001 | | 2.523 | | 12.12 | 6.0 | 4216.19 |
| CP10 | 0.001 | Upstream | 2.523 | 206.18 | 12.12 | 6.0 | 4216.19 |
| CP10 | 0.001 | Downstream | 2.425 | 206.18 | 12.13 | 6.0 | 4211.19 |
| Basin 5C1 | 0.001 | | 2.537 | | 12.12 | 6.1 | 4216.19 |
| CP11 | 0.003 | Upstream | 2.481 | 206.35 | 12.13 | 12.0 | 4192.83 |
| CP11 | 0.003 | Downstream | 2.431 | 206.35 | 12.15 | 12.0 | 4179.67 |
| Basin 5D | 0.003 | | 3.556 | | 12.12 | 11.9 | 4216.19 |
| CP12 | 0.006 | Upstream | 2.989 | 206.69 | 12.13 | 23.2 | 4094.53 |
| CP12 | 0.006 | Downstream | 2.941 | 206.68 | 12.14 | 23.2 | 4092.11 |
| CP6 | 0.097 | Upstream | 1.814 | 196.02 | 12.16 | 234.4 | 2420.79 |
| CP6 | 0.097 | Downstream | 1.813 | 196.02 | 12.17 | 234.1 | 2418.33 |
| Basin 5F3 | 0.002 | | 2.967 | | 12.12 | 7.9 | 4216.19 |
| Basin 5E | 0.002 | | 3.000 | | 12.12 | 8.9 | 4216.19 |
| CP13 | 0.002 | Upstream | 3.000 | 206.26 | 12.12 | 8.9 | 4216.19 |
| CP13 | 0.002 | Downstream | 2.971 | 206.26 | 12.13 | 8.9 | 4208.54 |
| Basin 5F2 | 0.002 | | 2.627 | | 12.12 | 7.4 | 4216.19 |
| CP14 | 0.004 | Upstream | 2.813 | 206.48 | 12.13 | 16.2 | 4196.45 |
| CP14 | 0.004 | Downstream | 2.810 | 206.48 | 12.13 | 16.2 | 4192.11 |
| CP7 | 0.103 | Upstream | 1.871 | 196.11 | 12.16 | 253.8 | 2474.23 |
| CP7 | 0.103 | Downstream | 1.871 | 196.10 | 12.18 | 253.3 | 2469.78 |
| Basin 5G | 0.003 | | 3.521 | | 12.12 | 11.2 | 4216.19 |
| CP8 | 0.105 | Upstream | 1.913 | | 12.18 | 261.1 | 2481.60 |
| CP8 | 0.105 | Downstream | 1.913 | 191.83 | 12.18 | 260.0 | 2470.88 |
| Basin 3B | 0.013 | | 5.998 | | 12.12 | 60.7 | 4590.27 |
| Reach 3B | 0.013 | Upstream | 5.998 | 207.32 | 12.12 | 60.7 | 4590.27 |
| Reach 3B | 0.013 | Downstream | 5.963 | 207.32 | 12.12 | 60.7 | 4587.21 |
| Basin 3A2 | 0.200E-03 | | 0.245 | | 12.12 | 1.0 | 5052.17 |
| Outlet 1 | 0.013 | Upstream | 5.877 | | 12.12 | 61.7 | 4594.11 |
| Outlet 1 | 0.013 | Downstream | 5.877 | 210.17 | 12.12 | 61.7 | 4594.05 |
| Basin 3A | 0.013 | | 6.245 | | 12.12 | 61.4 | 4695.62 |
| Reach 8.1 | 0.004 | Upstream | 90.030 | 216.88 | 12.14 | 123.2 | 29307.76 |
| Reach 8.1 | 0.004 | Downstream | 89.878 | 216.88 | 12.11 | 123.2 | 29307.76 |
| Outlet 2 | 0.031 | Upstream | 17.540 | | 12.12 | 246.3 | 8020.57 |
| Outlet 2 | 0.031 | Downstream | 17.539 | 210.89 | 12.12 | 246.3 | 8020.54 |
| OUTLET | 0.136 | | 5.442 | | 12.16 | 473.7 | 3484.30 |

| Line Start Time (hr) | Flow (cfs) | Flow Values (cfs) | @ time (cfs) | increment (cfs) | of (cfs) | 0.100 (cfs) | hr (cfs) |
|----------------------|------------|-------------------|--------------|-----------------|----------|-------------|----------|
| 5.600 | 1.5 | 1.3 | 1.7 | 1.5 | 1.2 | 0.6 | 1.1 |
| 6.300 | 1.4 | 1.4 | 1.9 | 2.7 | 3.8 | 2.9 | 2.8 |
| 7.000 | 2.8 | 2.5 | 1.6 | 0.9 | 2.2 | 2.5 | 3.3 |
| 7.700 | 3.6 | 5.2 | 5.4 | 4.2 | 4.2 | 4.5 | 4.2 |
| 8.400 | 2.3 | 3.3 | 4.9 | 5.3 | 6.6 | 7.3 | 10.0 |
| 9.100 | 10.8 | 10.7 | 10.1 | 10.4 | 9.1 | 6.2 | 10.4 |
| 9.800 | 13.0 | 15.7 | 15.0 | 18.0 | 19.9 | 15.8 | 14.3 |
| 10.500 | 12.4 | 20.5 | 23.7 | 25.9 | 28.0 | 28.9 | 36.5 |
| 11.200 | 42.6 | 45.9 | 46.4 | 46.8 | 75.9 | 103.4 | 132.2 |
| 11.900 | 175.0 | 251.8 | 341.8 | 446.5 | 297.3 | 208.7 | 183.3 |
| 12.600 | 149.9 | 117.3 | 85.5 | 78.4 | 76.0 | 63.3 | 53.9 |
| 13.300 | 51.6 | 50.2 | 49.6 | 37.3 | 31.1 | 28.9 | 27.1 |

Unnamed Tributary to Broad Branch

| Line Start Time (hr) | Flow (cfs) | Values @ time (cfs) | increment of (cfs) | 0.100 hr (cfs) | 0.100 hr (cfs) | 0.100 hr (cfs) |
|----------------------------|---------------|------------------------|-----------------------|-------------------|-------------------|-------------------|
| 14.000 | 26.1 | 25.2 | 24.7 | 24.6 | 24.3 | 23.8 |
| 14.700 | 23.5 | 23.2 | 22.7 | 22.5 | 18.9 | 16.2 |
| 15.400 | 14.4 | 14.0 | 13.8 | 13.8 | 13.5 | 13.6 |
| 16.100 | 13.0 | 13.1 | 12.9 | 12.8 | 12.7 | 12.7 |
| 16.800 | 12.3 | 12.2 | 12.0 | 12.0 | 11.9 | 11.7 |
| 17.500 | 11.5 | 11.4 | 11.2 | 10.9 | 11.0 | 10.9 |
| 18.200 | 10.7 | 10.4 | 10.2 | 10.1 | 10.1 | 9.9 |
| 18.900 | 9.8 | 9.4 | 9.4 | 9.3 | 9.1 | 9.1 |
| 19.600 | 7.8 | 7.7 | 7.6 | 7.3 | 7.4 | 7.3 |
| 20.300 | 6.7 | 6.8 | 6.8 | 4.7 | 4.6 | 4.7 |
| 21.000 | 4.4 | 4.2 | 4.2 | 4.2 | 4.0 | 4.0 |
| 21.700 | 3.7 | 3.7 | 3.7 | 3.7 | 3.5 | 3.4 |
| 22.400 | 3.2 | 3.0 | 3.2 | 3.0 | 2.9 | 2.9 |
| 23.100 | 2.7 | 2.7 | 2.5 | 2.4 | 2.4 | 2.3 |
| 23.800 | 2.0 | 2.1 | 2.0 | 0.2 | | 2.2 |

Unnamed Tributary to Broad Branch

| Area or Reach Identifier | Drainage Area (sq mi) | Alternate | Peak Flow by Storm | | | | |
|--------------------------|-----------------------|-----------|--------------------|------------------|------------------|-------------------|-------------------|
| | | | 1_yr_sm (cfs) | 2_yr_sm (cfs) | 5_yr_sm (cfs) | 10_yr_sm (cfs) | 25_yr_sm (cfs) |
| Basin 1 | 0.012 | | 14.2 | 19.7 | 27.2 | 33.2 | 41.2 |
| Basin 2 | 0.004 | | 4.5 | 6.3 | 9.0 | 11.1 | 14.0 |
| Basin 3A | 0.013 | | 20.0 | 26.4 | 34.7 | 41.0 | 49.5 |
| Basin 3B | 0.013 | | 18.3 | 24.6 | 33.1 | 39.5 | 48.2 |
| Basin 4 | 0.065 | | 79.1 | 107.6 | 146.9 | 177.0 | 217.9 |
| Basin 5A | 0.001 | | 1.2 | 1.8 | 2.6 | 3.2 | 4.0 |
| Basin 5B | 0.002 | | 2.4 | 3.5 | 5.0 | 6.2 | 7.8 |
| Basin 5C | 0.001 | | 1.4 | 2.0 | 2.9 | 3.6 | 4.6 |
| Basin 5D | 0.003 | | 2.8 | 4.0 | 5.7 | 7.1 | 9.0 |
| Basin 5E | 0.002 | | 2.1 | 3.0 | 4.3 | 5.4 | 6.8 |
| Basin 5G | 0.003 | | 2.6 | 3.8 | 5.4 | 6.8 | 8.6 |
| Basin 3A1 | 0.200E-03 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Basin 3A2 | 0.200E-03 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Basin 3B1 | 0.006 | | 8.2 | 11.0 | 14.8 | 17.6 | 21.5 |
| Basin 3B2 | 0.002 | | 2.6 | 3.5 | 4.7 | 5.6 | 6.8 |
| Basin 5F1 | 0.003 | | 2.6 | 3.7 | 5.3 | 6.6 | 8.4 |
| Basin 5F2 | 0.002 | | 1.7 | 2.5 | 3.6 | 4.4 | 5.6 |
| Basin 5F3 | 0.002 | | 1.9 | 2.7 | 3.8 | 4.8 | 6.0 |
| Basin 5C1 | 0.001 | | 1.4 | 2.0 | 2.9 | 3.6 | 4.6 |
| Reach 3B | 0.013 | | 18.3 | 24.6 | 33.1 | 39.5 | 48.2 |
| DOWNSTREAM | | | 18.3 | 24.6 | 33.1 | 39.5 | 48.2 |
| CP1 | 0.012 | | 14.2 | 19.7 | 27.2 | 33.2 | 41.2 |
| DOWNSTREAM | | | 14.2 | 19.6 | 27.2 | 33.2 | 41.2 |
| CP2 | 0.024 | | 19.3 | 27.4 | 40.9 | 52.4 | 65.1 |
| DOWNSTREAM | | | 19.1 | 27.3 | 39.4 | 47.8 | 55.0 |
| CP3 | 0.024 | | 19.1 | 27.3 | 39.4 | 47.8 | 55.0 |
| DOWNSTREAM | | | 14.9 | 22.8 | 35.4 | 43.8 | 51.9 |
| CP4 | 0.025 | | 14.9 | 22.8 | 35.4 | 44.8 | 53.1 |
| DOWNSTREAM | | | 14.9 | 22.8 | 35.4 | 44.7 | 53.1 |
| CP7 | 0.103 | | 15.8 | 25.5 | 60.4 | 111.5 | 171.4 |
| DOWNSTREAM | | | 15.7 | 25.4 | 60.3 | 111.1 | 171.0 |
| CP5 | 0.089 | | 14.9 | 23.2 | 43.2 | 85.3 | 135.8 |
| DOWNSTREAM | | | 14.9 | 23.0 | 43.1 | 85.1 | 135.6 |
| CP8 | 0.105 | | 17.6 | 27.6 | 63.0 | 115.1 | 176.6 |
| DOWNSTREAM | | | 17.2 | 27.3 | 57.4 | 84.5 | 171.0 |
| CP6 | 0.097 | | 14.9 | 25.1 | 53.8 | 101.3 | 157.3 |
| DOWNSTREAM | | | 14.9 | 25.1 | 53.6 | 101.1 | 157.2 |
| Outlet 1 | 0.013 | | 18.3 | 24.6 | 33.1 | 39.5 | 48.2 |
| DOWNSTREAM | | | 18.3 | 24.6 | 33.1 | 39.5 | 48.2 |
| Outlet 2 | 0.031 | | 114.1 | 149.5 | 190.6 | 203.7 | 220.8 |
| DOWNSTREAM | | | 114.1 | 149.5 | 190.6 | 203.7 | 220.8 |
| CP9 | 0.065 | | 79.1 | 107.6 | 146.9 | 177.0 | 217.9 |
| DOWNSTREAM | | | 77.1 | 102.9 | 138.5 | 173.3 | 215.1 |
| CP10 | 0.001 | | 1.4 | 2.0 | 2.9 | 3.6 | 4.6 |
| DOWNSTREAM | | | 1.4 | 2.0 | 2.9 | 3.6 | 4.6 |
| CP12 | 0.006 | | 5.3 | 7.8 | 11.1 | 13.9 | 17.6 |
| DOWNSTREAM | | | 5.3 | 7.8 | 11.1 | 13.9 | 17.6 |
| CP13 | 0.002 | | 2.1 | 3.0 | 4.3 | 5.4 | 6.8 |
| DOWNSTREAM | | | 2.1 | 3.0 | 4.3 | 5.3 | 6.8 |
| CP14 | 0.004 | | 3.8 | 5.5 | 7.8 | 9.7 | 12.3 |
| DOWNSTREAM | | | 3.8 | 5.4 | 7.8 | 9.7 | 12.3 |

Unnamed Tributary to Broad Branch

| Area or Reach Identifier | Drainage Area (sq mi) | Alternate | Peak Flow by Storm | | | | |
|--------------------------|-----------------------|-----------|--------------------|--------------------|------------------|-------------------|-------------------|
| | | | 1_yr_sm (cfs) | 2_yr_sm (cfs) | 5_yr_sm (cfs) | 10_yr_sm (cfs) | 25_yr_sm (cfs) |
| Reach 8.1 | 0.004 | | 77.1 | 102.9 | 123.2 | 123.2 | 123.2 |
| DOWNSTREAM | | | 77.1 | 102.9 | 123.2 | 123.2 | 123.2 |
| Reach 1 | 0.016 | | 18.6 | 26.0 | 36.2 | 44.3 | 55.2 |
| DOWNSTREAM | | | 14.6 | 20.6 | 30.1 | 38.2 | 47.8 |
| CP11 | 0.003 | | 2.8 | 4.0 | 5.8 | 7.2 | 9.1 |
| DOWNSTREAM | | | 2.8 | 4.0 | 5.8 | 7.2 | 9.1 |
| Reach 2 | 0.024 | | 19.1 | 27.3 | 39.4 | 47.8 | 55.0 |
| DOWNSTREAM | | | 19.1 | 27.3 | 39.4 | 47.8 | 55.0 |
| Reach 8 | 0.061 | | 0.0 | 0.0 | 15.3 | 50.0 | 91.8 |
| DOWNSTREAM | | | 0.0 | 0.0 | 13.3 | 47.2 | 89.1 |
| CP9A | 0.061 | | 77.1 | 102.9 | 138.5 | 173.3 | 215.1 |
| DOWNSTREAM | | | 0.0 | 0.0 | 15.3 | 50.0 | 91.8 |
| Reach 1b | 0.022 | | 18.8 | 26.6 | 39.2 | 50.4 | 63.3 |
| DOWNSTREAM | | | 18.1 | 25.8 | 38.3 | 48.9 | 60.8 |
| OUTLET | 0.136 | | 128.3 | 174.4 | 234.0 | 260.7 | 350.6 |
| Area or Reach Identifier | Drainage Area (sq mi) | Alternate | Peak Flow by Storm | | | | |
| | | | 50_yr_sm (cfs) | 100_yr_sm (cfs) | (cfs) | (cfs) | (cfs) |
| Basin 1 | 0.012 | | 46.8 | 52.9 | | | |
| Basin 2 | 0.004 | | 16.0 | 18.2 | | | |
| Basin 3A | 0.013 | | 55.1 | 61.4 | | | |
| Basin 3B | 0.013 | | 54.2 | 60.7 | | | |
| Basin 4 | 0.065 | | 246.9 | 277.2 | | | |
| Basin 5A | 0.001 | | 4.6 | 5.3 | | | |
| Basin 5B | 0.002 | | 9.0 | 10.2 | | | |
| Basin 5C | 0.001 | | 5.3 | 6.0 | | | |
| Basin 5D | 0.003 | | 10.4 | 11.9 | | | |
| Basin 5E | 0.002 | | 7.8 | 8.9 | | | |
| Basin 5G | 0.003 | | 9.9 | 11.2 | | | |
| Basin 3A1 | 0.2000E-03 | | 0.0 | 1.0 | | | |
| Basin 3A2 | 0.2000E-03 | | 0.0 | 1.0 | | | |
| Basin 3B1 | 0.006 | | 24.2 | 27.1 | | | |
| Basin 3B2 | 0.002 | | 7.6 | 8.5 | | | |
| Basin 5F1 | 0.003 | | 9.7 | 11.0 | | | |
| Basin 5F2 | 0.002 | | 6.5 | 7.4 | | | |
| Basin 5F3 | 0.002 | | 7.0 | 7.9 | | | |
| Basin 5C1 | 0.001 | | 5.3 | 6.1 | | | |
| Reach 3B | 0.013 | | 54.2 | 60.7 | | | |
| DOWNSTREAM | | | 54.2 | 60.7 | | | |
| CP1 | 0.012 | | 46.8 | 52.9 | | | |
| DOWNSTREAM | | | 46.8 | 52.9 | | | |
| CP2 | 0.024 | | 72.7 | 79.0 | | | |
| DOWNSTREAM | | | 60.5 | 64.3 | | | |
| CP3 | 0.024 | | 60.5 | 64.3 | | | |
| DOWNSTREAM | | | 57.4 | 62.3 | | | |
| CP4 | 0.025 | | 58.8 | 63.8 | | | |
| DOWNSTREAM | | | 58.8 | 63.8 | | | |
| CP7 | 0.103 | | 212.0 | 253.8 | | | |
| DOWNSTREAM | | | 211.7 | 253.3 | | | |

Unnamed Tributary to Broad Branch

| Area or Reach Identifier | Drainage Area (sq mi) | Alternate | Peak Flow by Storm | | | |
|--------------------------|-----------------------|-----------|--------------------|-----------------|-------|-------|
| | | | 50_yr_sm (cfs) | 100_yr_sm (cfs) | (cfs) | (cfs) |
| CP5 | 0.089 | | 169.9 | 205.2 | | |
| DOWNSTREAM | | | 169.6 | 204.8 | | |
| CP8 | 0.105 | | 218.3 | 261.1 | | |
| DOWNSTREAM | | | 217.1 | 260.0 | | |
| CP6 | 0.097 | | 195.3 | 234.4 | | |
| DOWNSTREAM | | | 195.1 | 234.1 | | |
| Outlet 1 | 0.013 | | 54.2 | 61.7 | | |
| DOWNSTREAM | | | 54.2 | 61.7 | | |
| Outlet 2 | 0.031 | | 232.5 | 246.3 | | |
| DOWNSTREAM | | | 232.5 | 246.3 | | |
| CP9 | 0.065 | | 246.9 | 277.2 | | |
| DOWNSTREAM | | | 243.3 | 273.8 | | |
| CP10 | 0.001 | | 5.3 | 6.0 | | |
| DOWNSTREAM | | | 5.3 | 6.0 | | |
| CP12 | 0.006 | | 20.3 | 23.2 | | |
| DOWNSTREAM | | | 20.3 | 23.2 | | |
| CP13 | 0.002 | | 7.8 | 8.9 | | |
| DOWNSTREAM | | | 7.8 | 8.9 | | |
| CP14 | 0.004 | | 14.2 | 16.2 | | |
| DOWNSTREAM | | | 14.2 | 16.2 | | |
| Reach 8.1 | 0.004 | | 123.2 | 123.2 | | |
| DOWNSTREAM | | | 123.2 | 123.2 | | |
| Reach 1 | 0.016 | | 62.8 | 71.0 | | |
| DOWNSTREAM | | | 53.9 | 59.2 | | |
| CP11 | 0.003 | | 10.5 | 12.0 | | |
| DOWNSTREAM | | | 10.5 | 12.0 | | |
| Reach 2 | 0.024 | | 60.5 | 64.3 | | |
| DOWNSTREAM | | | 60.5 | 64.3 | | |
| Reach 8 | 0.061 | | 120.1 | 150.6 | | |
| DOWNSTREAM | | | 117.3 | 147.2 | | |
| CP9A | 0.061 | | 243.3 | 273.8 | | |
| DOWNSTREAM | | | 120.1 | 150.6 | | |
| Reach 1b | 0.022 | | 71.6 | 78.9 | | |
| DOWNSTREAM | | | 67.8 | 73.7 | | |
| OUTLET | 0.136 | | 417.2 | 473.7 | | |



Appendix 4 - Hydraulic Calculations

HY-8 Culvert Analysis Report

Table 1 - Summary of Culvert Flows at Crossing: Existing 42-inch RCP

| Headwater Elevation (ft) | Total Discharge (cfs) | 42-inch Linnaean Discharge (cfs) | Roadway Discharge (cfs) | Iterations |
|-----------------------------|-----------------------|-------------------------------------|----------------------------|-------------|
| 216.22 | 217.90 | 62.27 | 155.54 | 8 |
| 216.24 | 223.83 | 62.53 | 161.24 | 3 |
| 216.25 | 229.76 | 62.77 | 166.93 | 3 |
| 216.26 | 235.69 | 63.02 | 172.62 | 3 |
| 216.28 | 241.62 | 63.27 | 178.31 | 3 |
| 216.29 | 246.90 | 63.47 | 182.98 | 2 |
| 216.30 | 253.48 | 63.75 | 189.67 | 3 |
| 216.31 | 259.41 | 63.97 | 194.99 | 2 |
| 216.33 | 265.34 | 64.22 | 201.08 | 3 |
| 216.34 | 271.27 | 64.43 | 206.46 | 2 |
| 216.35 | 277.20 | 64.67 | 212.50 | 3 |
| 215.61 | 49.86 | 49.86 | 0.00 | Overtopping |

Rating Curve Plot for Crossing: Existing 42-inch RCP

Total Rating Curve
Crossing: Existing 42-inch RCP

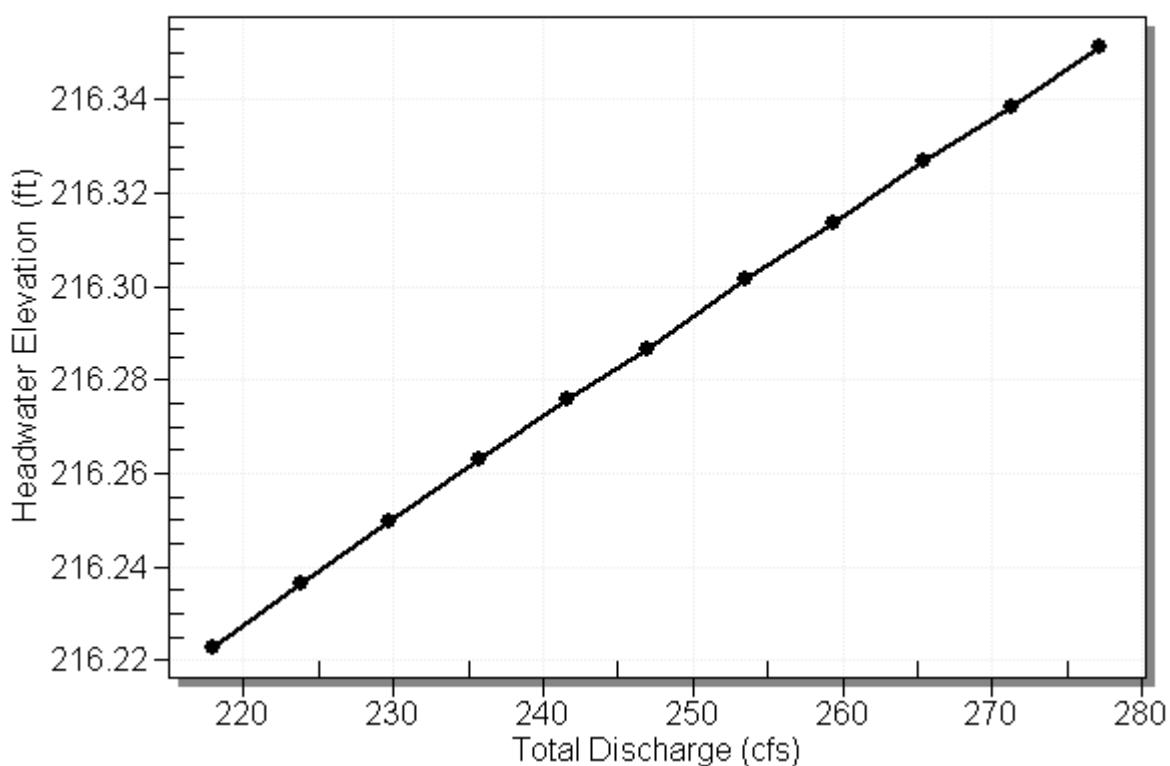


Table 2 - Culvert Summary Table: 42-inch Linnaean

| Total Discharge (cfs) | Culvert Discharge (cfs) | Headwater Elevation (ft) | Inlet Control Depth (ft) | Outlet Control Depth (ft) | Flow Type | Normal Depth (ft) | Critical Depth (ft) | Outlet Depth (ft) | Tailwater Depth (ft) | Outlet Velocity (ft/s) | Tailwater Velocity (ft/s) |
|-----------------------|-------------------------|--------------------------|--------------------------|---------------------------|-----------|-------------------|---------------------|-------------------|----------------------|------------------------|---------------------------|
| 217.90 | 62.27 | 216.22 | 3.732 | 0.0* | 5-S2n | 0.863 | 2.471 | 1.111 | 1.572 | 23.677 | 16.879 |
| 223.83 | 62.53 | 216.24 | 3.746 | 0.0* | 5-S2n | 0.865 | 2.475 | 1.115 | 1.592 | 23.634 | 16.996 |
| 229.76 | 62.77 | 216.25 | 3.759 | 0.0* | 5-S2n | 0.866 | 2.480 | 1.118 | 1.611 | 23.654 | 17.113 |
| 235.69 | 63.02 | 216.26 | 3.772 | 0.0* | 5-S2n | 0.868 | 2.484 | 1.121 | 1.630 | 23.643 | 17.228 |
| 241.62 | 63.27 | 216.28 | 3.785 | 0.0* | 5-S2n | 0.870 | 2.489 | 1.124 | 1.650 | 23.662 | 17.338 |
| 246.90 | 63.47 | 216.29 | 3.796 | 0.0* | 5-S2n | 0.871 | 2.492 | 1.125 | 1.666 | 23.689 | 17.437 |
| 253.48 | 63.75 | 216.30 | 3.811 | 0.0* | 5-S2n | 0.873 | 2.498 | 1.128 | 1.687 | 23.731 | 17.556 |
| 259.41 | 63.97 | 216.31 | 3.823 | 0.0* | 5-S2n | 0.875 | 2.502 | 1.132 | 1.705 | 23.696 | 17.661 |
| 265.34 | 64.22 | 216.33 | 3.836 | 0.0* | 5-S2n | 0.877 | 2.506 | 1.134 | 1.723 | 23.714 | 17.767 |
| 271.27 | 64.43 | 216.34 | 3.848 | 0.0* | 5-S2n | 0.878 | 2.510 | 1.136 | 1.741 | 23.737 | 17.867 |
| 277.20 | 64.67 | 216.35 | 3.861 | 0.0* | 5-S2n | 0.880 | 2.514 | 1.139 | 1.758 | 23.728 | 17.968 |

* theoretical depth is impractical. Depth reported is corrected.

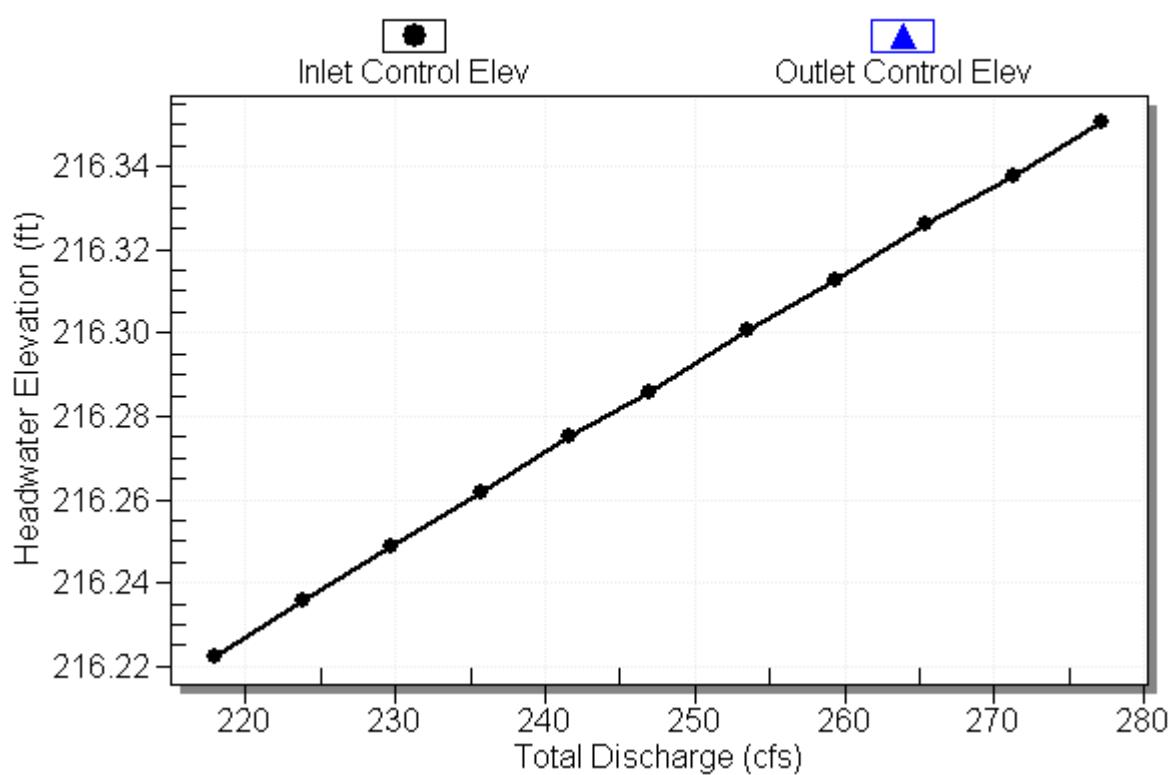
Inlet Elevation (invert): 212.49 ft, Outlet Elevation (invert): 204.63 ft

Culvert Length: 46.67 ft, Culvert Slope: 0.1709

Culvert Performance Curve Plot: 42-inch Linnaean

Performance Curve

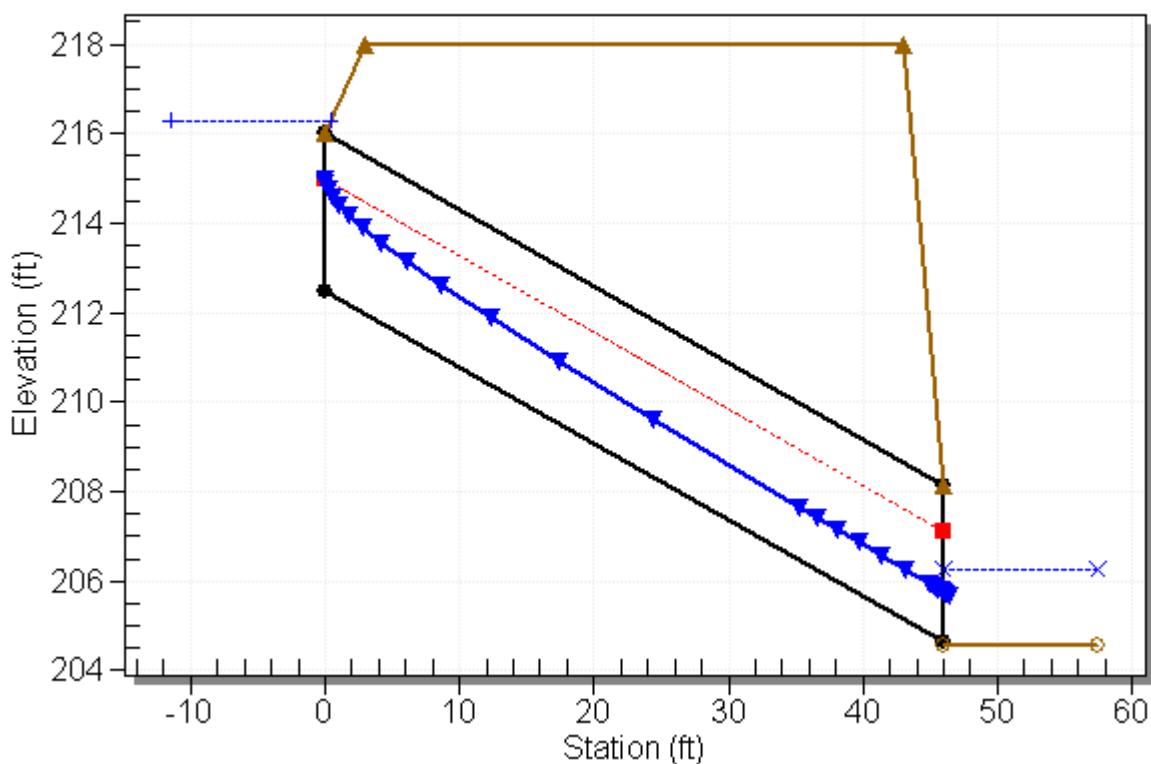
Culvert: 42-inch Linnaean



Water Surface Profile Plot for Culvert: 42-inch Linnaean

Crossing - Existing 42-inch RCP, Design Discharge - 246.9 cfs

Culvert - 42-inch Linnaean, Culvert Discharge - 63.5 cfs



Site Data - 42-inch Linnaean

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 212.49 ft

Outlet Station: 46.00 ft

Outlet Elevation: 204.63 ft

Number of Barrels: 1

Culvert Data Summary - 42-inch Linnaean

Barrel Shape: Circular

Barrel Diameter: 3.50 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Inlet Type: Conventional

Inlet Edge Condition: Square Edge with Headwall

Inlet Depression: NONE

Table 3 - Downstream Channel Rating Curve (Crossing: Existing 42-inch RCP)

| Flow (cfs) | Water Surface Elev (ft) | Depth (ft) | Velocity (ft/s) | Shear (psf) | Froude Number |
|------------|-------------------------|------------|-----------------|-------------|---------------|
| 217.90 | 206.15 | 1.57 | 16.88 | 2.26 | 2.98 |
| 223.83 | 206.17 | 1.59 | 17.00 | 2.28 | 2.98 |
| 229.76 | 206.19 | 1.61 | 17.11 | 2.31 | 2.99 |
| 235.69 | 206.21 | 1.63 | 17.23 | 2.34 | 2.99 |
| 241.62 | 206.23 | 1.65 | 17.34 | 2.37 | 3.00 |
| 246.90 | 206.25 | 1.67 | 17.44 | 2.39 | 3.00 |
| 253.48 | 206.27 | 1.69 | 17.56 | 2.42 | 3.00 |
| 259.41 | 206.28 | 1.70 | 17.66 | 2.45 | 3.01 |
| 265.34 | 206.30 | 1.72 | 17.77 | 2.47 | 3.01 |
| 271.27 | 206.32 | 1.74 | 17.87 | 2.50 | 3.02 |
| 277.20 | 206.34 | 1.76 | 17.97 | 2.52 | 3.02 |

Tailwater Channel Data - Existing 42-inch RCP

Tailwater Channel Option: Trapezoidal Channel

Bottom Width: 3.50 ft

Side Slope (H:V): 3.00 (_:1)

Channel Slope: 0.0230

Channel Manning's n: 0.0130

Channel Invert Elevation: 204.58 ft

Roadway Data for Crossing: Existing 42-inch RCP

Roadway Profile Shape: Irregular Roadway Shape (coordinates)

Roadway Surface: Paved

Roadway Top Width: 40.00 ft

Table 4 - Summary of Culvert Flows at Crossing: Existing Broad Branch 36" Culvert

| Headwater Elevation (ft) | Total Discharge (cfs) | Broad Branch Discharge (cfs) | Roadway Discharge (cfs) | Iterations |
|-----------------------------|-----------------------|---------------------------------|----------------------------|-------------|
| 184.97 | 0.00 | 0.00 | 0.00 | 1 |
| 186.02 | 7.00 | 7.00 | 0.00 | 1 |
| 186.58 | 14.00 | 14.00 | 0.00 | 1 |
| 187.06 | 21.00 | 21.00 | 0.00 | 1 |
| 187.50 | 28.00 | 28.00 | 0.00 | 1 |
| 187.95 | 35.00 | 35.00 | 0.00 | 1 |
| 188.42 | 42.00 | 42.00 | 0.00 | 1 |
| 188.97 | 49.00 | 49.00 | 0.00 | 1 |
| 189.61 | 56.00 | 56.00 | 0.00 | 1 |
| 190.42 | 63.00 | 63.00 | 0.00 | 1 |
| 191.04 | 70.00 | 67.93 | 1.92 | 19 |
| 191.00 | 67.57 | 67.57 | 0.00 | Overtopping |

Rating Curve Plot for Crossing: Existing Broad Branch 36" Culvert

Total Rating Curve

Crossing: Existing Broad Branch 36" Culvert

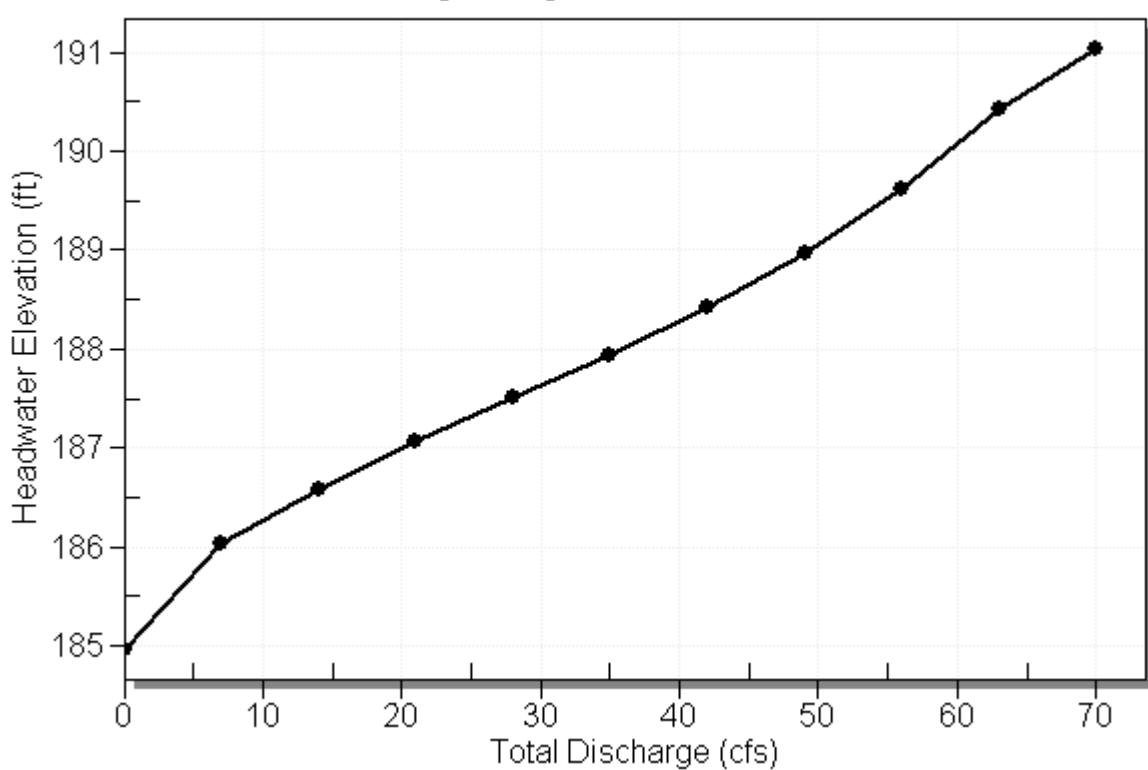


Table 5 - Culvert Summary Table: Broad Branch

| Total Discharge (cfs) | Culvert Discharge (cfs) | Headwater Elevation (ft) | Inlet Control Depth (ft) | Outlet Control Depth (ft) | Flow Type | Normal Depth (ft) | Critical Depth (ft) | Outlet Depth (ft) | Tailwater Depth (ft) | Outlet Velocity (ft/s) | Tailwater Velocity (ft/s) |
|-----------------------|-------------------------|--------------------------|--------------------------|---------------------------|-----------|-------------------|---------------------|-------------------|----------------------|------------------------|---------------------------|
| 0.00 | 0.00 | 184.97 | 0.000 | 0.0* | 0-NF | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 7.00 | 7.00 | 186.02 | 0.905 | 1.055 | 2-M2c | 0.860 | 0.619 | 0.623 | 0.221 | 4.291 | 2.878 |
| 14.00 | 14.00 | 186.58 | 1.404 | 1.612 | 2-M2c | 1.306 | 0.959 | 0.962 | 0.338 | 5.315 | 3.768 |
| 21.00 | 21.00 | 187.06 | 1.869 | 2.088 | 2-M2c | 1.711 | 1.230 | 1.232 | 0.434 | 6.110 | 4.402 |
| 28.00 | 28.00 | 187.50 | 2.276 | 2.533 | 2-M2c | 2.212 | 1.461 | 1.461 | 0.518 | 6.824 | 4.911 |
| 35.00 | 35.00 | 187.95 | 2.776 | 2.976 | 2-M2c | 2.500 | 1.663 | 1.665 | 0.596 | 7.497 | 5.343 |
| 42.00 | 42.00 | 188.42 | 3.324 | 3.448 | 2-M2c | 2.500 | 1.839 | 1.844 | 0.667 | 8.186 | 5.720 |
| 49.00 | 49.00 | 188.97 | 3.907 | 4.001 | 7-M2c | 2.500 | 1.999 | 1.999 | 0.736 | 8.914 | 6.056 |
| 56.00 | 56.00 | 189.61 | 4.638 | 4.642 | 7-M2c | 2.500 | 2.110 | 2.128 | 0.800 | 9.710 | 6.363 |
| 63.00 | 63.00 | 190.42 | 5.453 | 5.336 | 7-M2c | 2.500 | 2.220 | 2.225 | 0.862 | 10.607 | 6.644 |
| 70.00 | 67.93 | 191.04 | 6.074 | 5.846 | 7-M2c | 2.500 | 2.297 | 2.288 | 0.922 | 11.204 | 6.904 |

* theoretical depth is impractical. Depth reported is corrected.

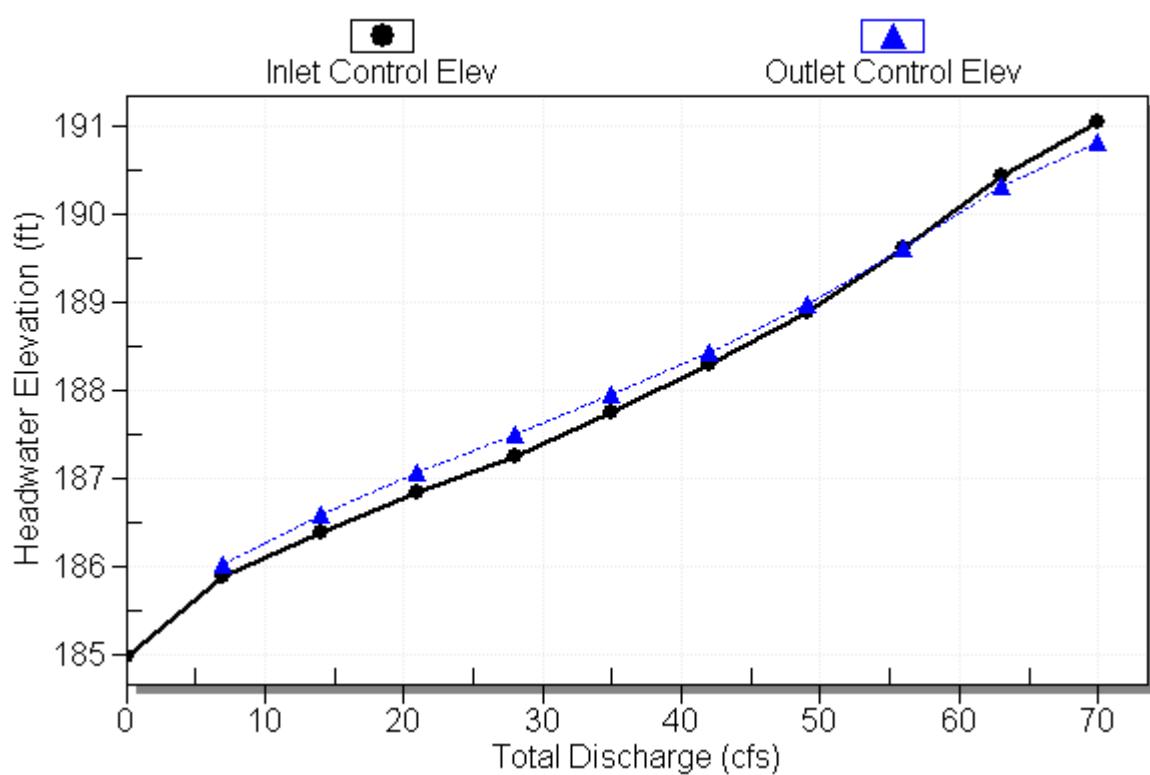
Inlet Elevation (invert): 184.97 ft, Outlet Elevation (invert): 184.82 ft

Culvert Length: 30.00 ft, Culvert Slope: 0.0050

Culvert Performance Curve Plot: Broad Branch

Performance Curve

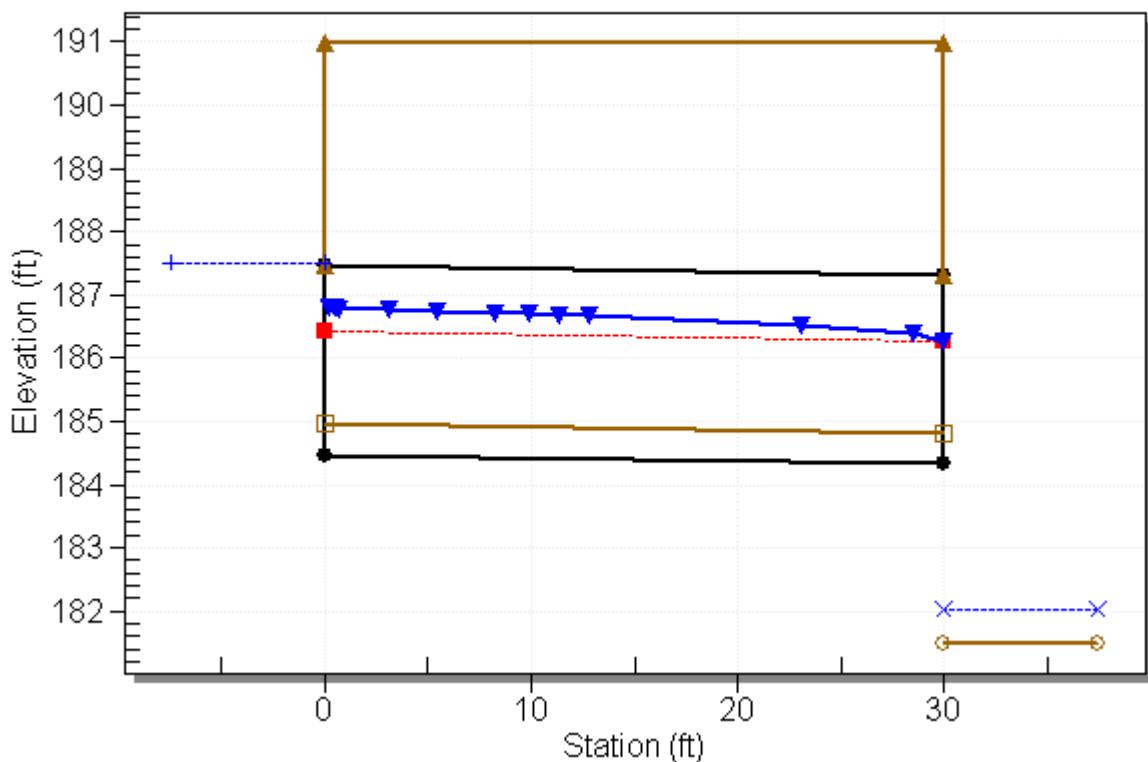
Culvert: Broad Branch



Water Surface Profile Plot for Culvert: Broad Branch

Crossing - Existing Broad Branch 36" Culvert, Design Discharge - 28.0 cfs

Culvert - Broad Branch, Culvert Discharge - 28.0 cfs



Site Data - Broad Branch

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 184.47 ft

Outlet Station: 30.00 ft

Outlet Elevation: 184.32 ft

Number of Barrels: 1

Culvert Data Summary - Broad Branch

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Concrete

Embedment: 6.00 in

Barrel Manning's n: 0.0120 (top and sides)

Manning's n: 0.0350 (bottom)

Inlet Type: Conventional

Inlet Edge Condition: Grooved End in Headwall

Inlet Depression: NONE

Table 6 - Downstream Channel Rating Curve (Crossing: Existing Broad Branch 36"

| Flow (cfs) | Water Surface Elev (ft) | Depth (ft) | Velocity (ft/s) | Shear (psf) | Froude Number |
|------------|-------------------------|------------|-----------------|-------------|---------------|
| 0.00 | 181.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7.00 | 181.72 | 0.22 | 2.88 | 0.07 | 1.08 |
| 14.00 | 181.84 | 0.34 | 3.77 | 0.11 | 1.14 |
| 21.00 | 181.93 | 0.43 | 4.40 | 0.14 | 1.18 |
| 28.00 | 182.02 | 0.52 | 4.91 | 0.16 | 1.20 |
| 35.00 | 182.10 | 0.60 | 5.34 | 0.19 | 1.22 |
| 42.00 | 182.17 | 0.67 | 5.72 | 0.21 | 1.23 |
| 49.00 | 182.24 | 0.74 | 6.06 | 0.23 | 1.24 |
| 56.00 | 182.30 | 0.80 | 6.36 | 0.25 | 1.25 |
| 63.00 | 182.36 | 0.86 | 6.64 | 0.27 | 1.26 |
| 70.00 | 182.42 | 0.92 | 6.90 | 0.29 | 1.27 |

Tailwater Channel Data - Existing Broad Branch 36" Culvert

Tailwater Channel Option: Rectangular Channel

Bottom Width: 11.00 ft

Channel Slope: 0.0050

Channel Manning's n: 0.0130

Channel Invert Elevation: 181.50 ft

Roadway Data for Crossing: Existing Broad Branch 36" Culvert

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 70.00 ft

Crest Elevation: 191.00 ft

Roadway Surface: Paved

Roadway Top Width: 30.00 ft

Table 7 - Summary of Culvert Flows at Crossing: Proposed Broad Branch 36" Culvert

| Headwater Elevation (ft) | Total Discharge (cfs) | Broad Branch Discharge (cfs) | Roadway Discharge (cfs) | Iterations |
|-----------------------------|-----------------------|---------------------------------|----------------------------|-------------|
| 186.01 | 12.50 | 12.50 | 0.00 | 1 |
| 186.38 | 18.01 | 18.01 | 0.00 | 1 |
| 186.54 | 20.70 | 20.70 | 0.00 | 1 |
| 186.98 | 29.03 | 29.03 | 0.00 | 1 |
| 187.25 | 34.54 | 34.54 | 0.00 | 1 |
| 187.53 | 40.05 | 40.05 | 0.00 | 1 |
| 187.93 | 45.56 | 45.56 | 0.00 | 1 |
| 188.19 | 51.07 | 51.07 | 0.00 | 1 |
| 188.51 | 56.58 | 56.58 | 0.00 | 1 |
| 188.90 | 62.09 | 62.09 | 0.00 | 1 |
| 189.33 | 67.60 | 67.60 | 0.00 | 1 |
| 191.00 | 86.05 | 86.05 | 0.00 | Overtopping |

Rating Curve Plot for Crossing: Proposed Broad Branch 36" Culvert

Total Rating Curve

Crossing: Proposed Broad Branch 36" Culvert

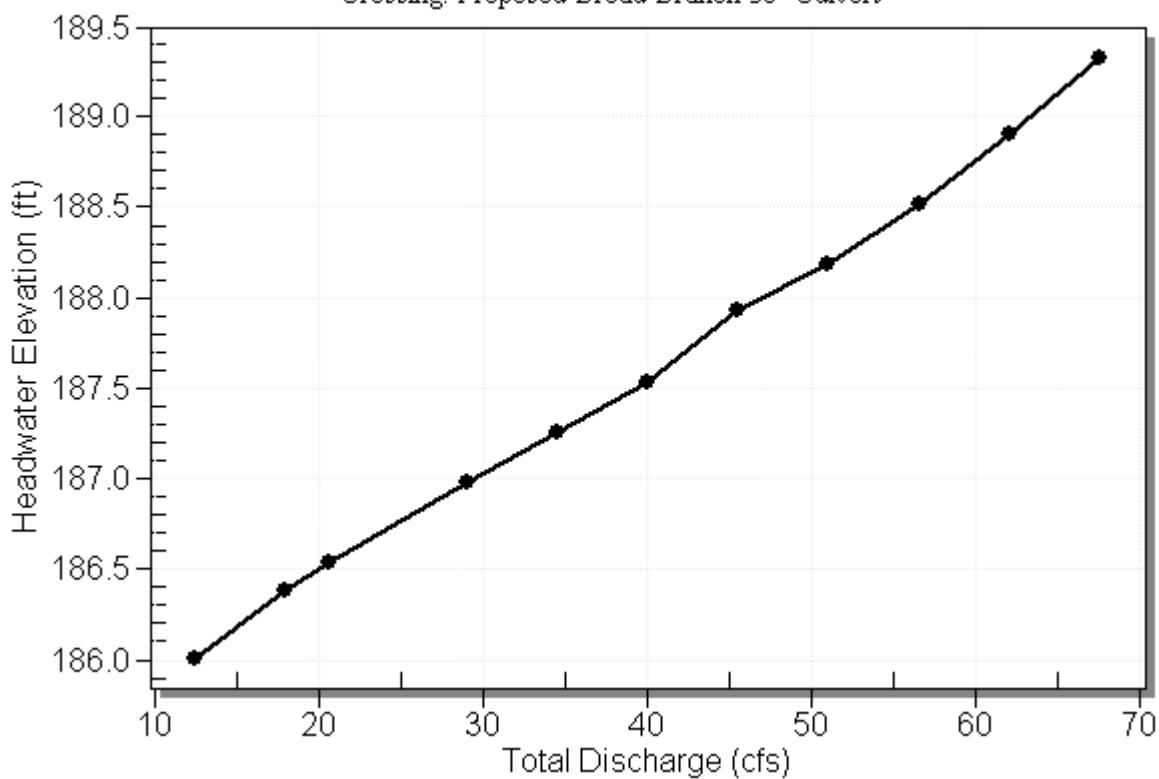


Table 8 - Culvert Summary Table: Broad Branch

| Total Discharge (cfs) | Culvert Discharge (cfs) | Headwater Elevation (ft) | Inlet Control Depth (ft) | Outlet Control Depth (ft) | Flow Type | Normal Depth (ft) | Critical Depth (ft) | Outlet Depth (ft) | Tailwater Depth (ft) | Outlet Velocity (ft/s) | Tailwater Velocity (ft/s) |
|-----------------------|-------------------------|--------------------------|--------------------------|---------------------------|-----------|-------------------|---------------------|-------------------|----------------------|------------------------|---------------------------|
| 12.50 | 12.50 | 186.01 | 1.541 | 0.0* | 1-S2n | 1.003 | 1.116 | 1.006 | 0.315 | 5.994 | 3.607 |
| 18.01 | 18.01 | 186.38 | 1.910 | 0.0* | 1-S2n | 1.227 | 1.351 | 1.230 | 0.395 | 6.607 | 4.150 |
| 20.70 | 20.70 | 186.54 | 2.068 | 0.0* | 1-S2n | 1.324 | 1.458 | 1.327 | 0.430 | 6.859 | 4.379 |
| 29.03 | 29.03 | 186.98 | 2.508 | 0.0* | 1-S2n | 1.617 | 1.740 | 1.619 | 0.530 | 7.464 | 4.979 |
| 34.54 | 34.54 | 187.25 | 2.782 | 0.0* | 1-S2n | 1.805 | 1.903 | 1.807 | 0.591 | 7.766 | 5.317 |
| 40.05 | 40.05 | 187.53 | 3.063 | 0.0* | 5-S2n | 2.000 | 2.057 | 2.006 | 0.648 | 7.982 | 5.619 |
| 45.56 | 45.56 | 187.93 | 3.362 | 3.456 | 2-M2c | 2.213 | 2.191 | 2.199 | 0.703 | 8.206 | 5.895 |
| 51.07 | 51.07 | 188.19 | 3.686 | 3.719 | 2-M2c | 2.468 | 2.317 | 2.325 | 0.755 | 8.688 | 6.150 |
| 56.58 | 56.58 | 188.51 | 4.043 | 4.016 | 2-M2c | 3.000 | 2.431 | 2.438 | 0.805 | 9.183 | 6.387 |
| 62.09 | 62.09 | 188.90 | 4.433 | 4.326 | 2-M2c | 3.000 | 2.519 | 2.537 | 0.854 | 9.771 | 6.609 |
| 67.60 | 67.60 | 189.33 | 4.859 | 4.668 | 2-M2c | 3.000 | 2.608 | 2.626 | 0.901 | 10.331 | 6.817 |

* theoretical depth is impractical. Depth reported is corrected.

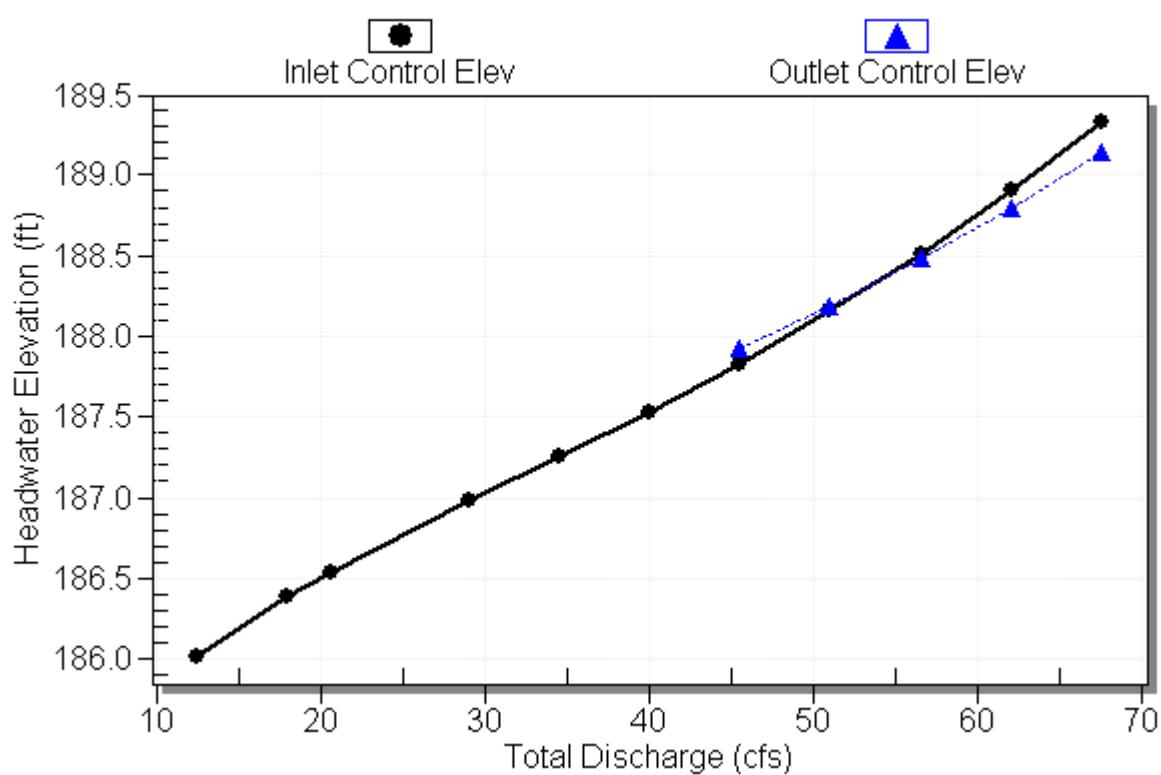
Inlet Elevation (invert): 184.47 ft, Outlet Elevation (invert): 184.32 ft

Culvert Length: 30.00 ft, Culvert Slope: 0.0050

Culvert Performance Curve Plot: Broad Branch

Performance Curve

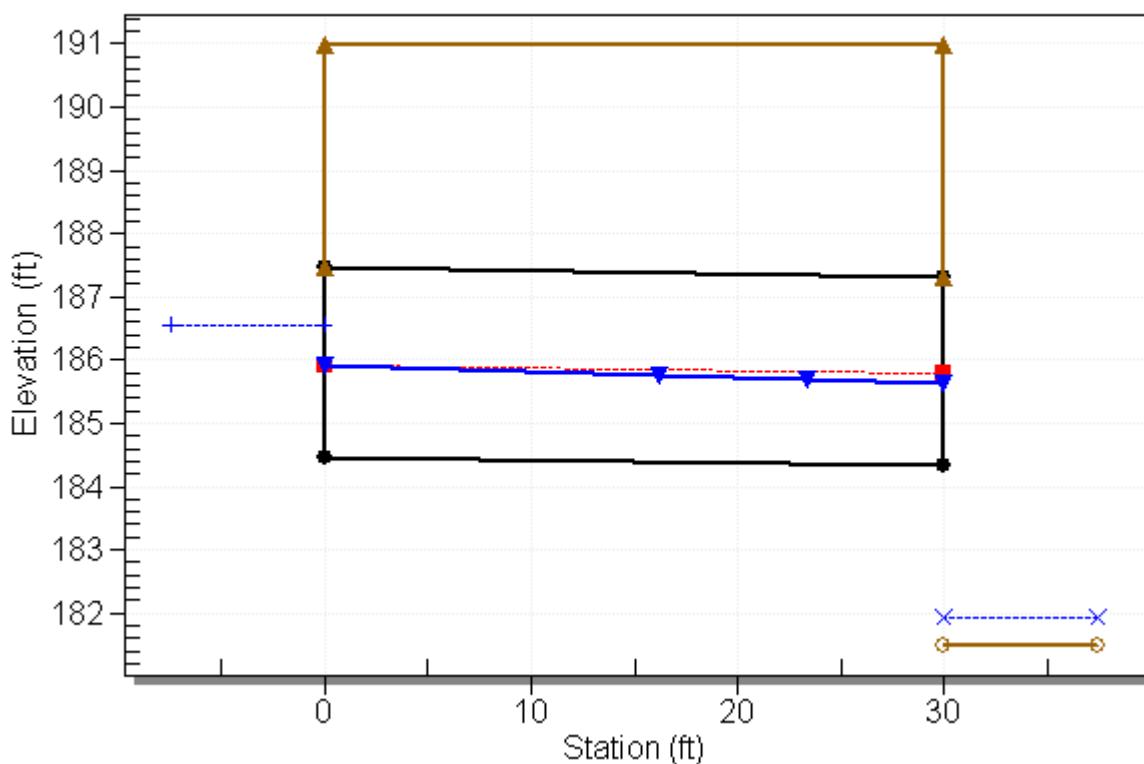
Culvert: Broad Branch



Water Surface Profile Plot for Culvert: Broad Branch

Crossing - Proposed Broad Branch 36" Culvert, Design Discharge - 20.7 cfs

Culvert - Broad Branch, Culvert Discharge - 20.7 cfs



Site Data - Broad Branch

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 184.47 ft

Outlet Station: 30.00 ft

Outlet Elevation: 184.32 ft

Number of Barrels: 1

Culvert Data Summary - Broad Branch

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Inlet Type: Conventional

Inlet Edge Condition: Grooved End in Headwall

Inlet Depression: NONE

Table 9 - Downstream Channel Rating Curve (Crossing: Proposed Broad Branch 36"

| Flow (cfs) | Water Surface Elev (ft) | Depth (ft) | Velocity (ft/s) | Shear (psf) | Froude Number |
|------------|-------------------------|------------|-----------------|-------------|---------------|
| 12.50 | 181.82 | 0.32 | 3.61 | 0.10 | 1.13 |
| 18.01 | 181.89 | 0.39 | 4.15 | 0.12 | 1.16 |
| 20.70 | 181.93 | 0.43 | 4.38 | 0.13 | 1.18 |
| 29.03 | 182.03 | 0.53 | 4.98 | 0.17 | 1.21 |
| 34.54 | 182.09 | 0.59 | 5.32 | 0.18 | 1.22 |
| 40.05 | 182.15 | 0.65 | 5.62 | 0.20 | 1.23 |
| 45.56 | 182.20 | 0.70 | 5.90 | 0.22 | 1.24 |
| 51.07 | 182.25 | 0.75 | 6.15 | 0.24 | 1.25 |
| 56.58 | 182.31 | 0.81 | 6.39 | 0.25 | 1.25 |
| 62.09 | 182.35 | 0.85 | 6.61 | 0.27 | 1.26 |
| 67.60 | 182.40 | 0.90 | 6.82 | 0.28 | 1.27 |

Tailwater Channel Data - Proposed Broad Branch 36" Culvert

Tailwater Channel Option: Rectangular Channel

Bottom Width: 11.00 ft

Channel Slope: 0.0050

Channel Manning's n: 0.0130

Channel Invert Elevation: 181.50 ft

Roadway Data for Crossing: Proposed Broad Branch 36" Culvert

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 70.00 ft

Crest Elevation: 191.00 ft

Roadway Surface: Paved

Roadway Top Width: 30.00 ft

Table 10 - Summary of Culvert Flows at Crossing: Prop. 36-inch Culvert at Linnaean

| Headwater Elevation (ft) | Total Discharge (cfs) | 36-inch Culvert Discharge (cfs) | Roadway Discharge (cfs) | Iterations |
|-----------------------------|-----------------------|------------------------------------|----------------------------|-------------|
| 215.47 | 47.80 | 47.80 | 0.00 | 1 |
| 215.51 | 48.52 | 48.52 | 0.00 | 1 |
| 215.55 | 49.24 | 49.24 | 0.00 | 1 |
| 215.60 | 49.96 | 49.96 | 0.00 | 1 |
| 215.61 | 50.20 | 50.20 | 0.00 | 1 |
| 215.69 | 51.40 | 51.40 | 0.00 | 1 |
| 215.73 | 52.12 | 52.12 | 0.00 | 1 |
| 215.78 | 52.84 | 52.84 | 0.00 | 1 |
| 215.82 | 53.56 | 53.56 | 0.00 | 1 |
| 215.87 | 54.28 | 54.28 | 0.00 | 1 |
| 215.92 | 55.00 | 55.00 | 0.00 | 1 |
| 218.00 | 80.82 | 80.82 | 0.00 | Overtopping |

Rating Curve Plot for Crossing: Prop. 36-inch Culvert at Linnaean Ave

Total Rating Curve

Crossing: Prop. 36-inch Culvert at Linnaean Ave

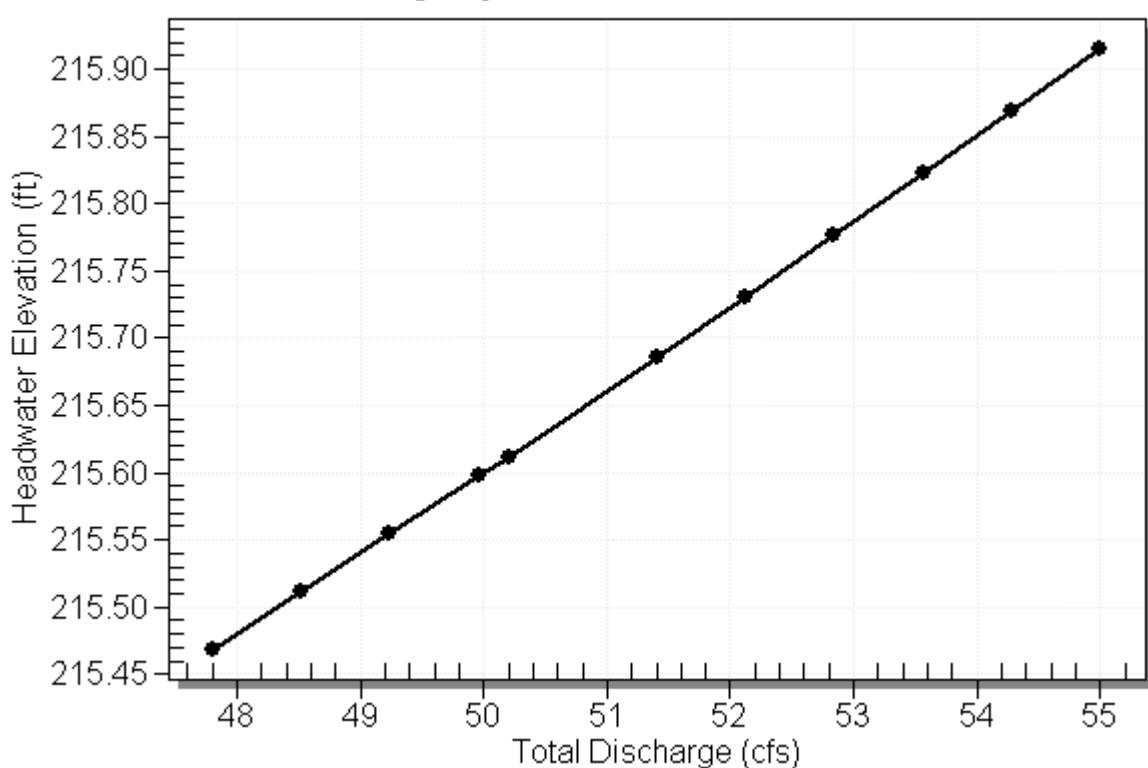


Table 11 - Culvert Summary Table: 36-inch Culvert

| Total Discharge (cfs) | Culvert Discharge (cfs) | Headwater Elevation (ft) | Inlet Control Depth (ft) | Outlet Control Depth (ft) | Flow Type | Normal Depth (ft) | Critical Depth (ft) | Outlet Depth (ft) | Tailwater Depth (ft) | Outlet Velocity (ft/s) | Tailwater Velocity (ft/s) |
|-----------------------|-------------------------|--------------------------|--------------------------|---------------------------|-----------|-------------------|---------------------|-------------------|----------------------|------------------------|---------------------------|
| 47.80 | 47.80 | 215.47 | 3.469 | 0.0* | 5-S2n | 1.460 | 2.243 | 1.567 | 3.500 | 12.806 | 0.000 |
| 48.52 | 48.52 | 215.51 | 3.511 | 0.0* | 5-S2n | 1.473 | 2.259 | 1.581 | 3.500 | 12.850 | 0.000 |
| 49.24 | 49.24 | 215.55 | 3.554 | 0.0* | 5-S2n | 1.487 | 2.276 | 1.596 | 3.500 | 12.893 | 0.000 |
| 49.96 | 49.96 | 215.60 | 3.597 | 0.0* | 5-S2n | 1.500 | 2.292 | 1.610 | 3.500 | 12.936 | 0.000 |
| 50.20 | 50.20 | 215.61 | 3.612 | 0.0* | 5-S2n | 1.504 | 2.298 | 1.616 | 3.500 | 12.943 | 0.000 |
| 51.40 | 51.40 | 215.69 | 3.686 | 0.0* | 5-S2n | 1.525 | 2.325 | 1.639 | 3.500 | 13.017 | 0.000 |
| 52.12 | 52.12 | 215.73 | 3.731 | 0.0* | 5-S2n | 1.538 | 2.342 | 1.654 | 3.500 | 13.057 | 0.000 |
| 52.84 | 52.84 | 215.78 | 3.776 | 0.0* | 5-S2n | 1.550 | 2.358 | 1.668 | 3.500 | 13.095 | 0.000 |
| 53.56 | 53.56 | 215.82 | 3.822 | 0.0* | 5-S2n | 1.563 | 2.375 | 1.683 | 3.500 | 13.133 | 0.000 |
| 54.28 | 54.28 | 215.87 | 3.869 | 0.0* | 5-S2n | 1.575 | 2.391 | 1.697 | 3.500 | 13.170 | 0.000 |
| 55.00 | 55.00 | 215.92 | 3.916 | 0.0* | 5-S2n | 1.588 | 2.405 | 1.710 | 3.500 | 13.218 | 0.000 |

* theoretical depth is impractical. Depth reported is corrected.

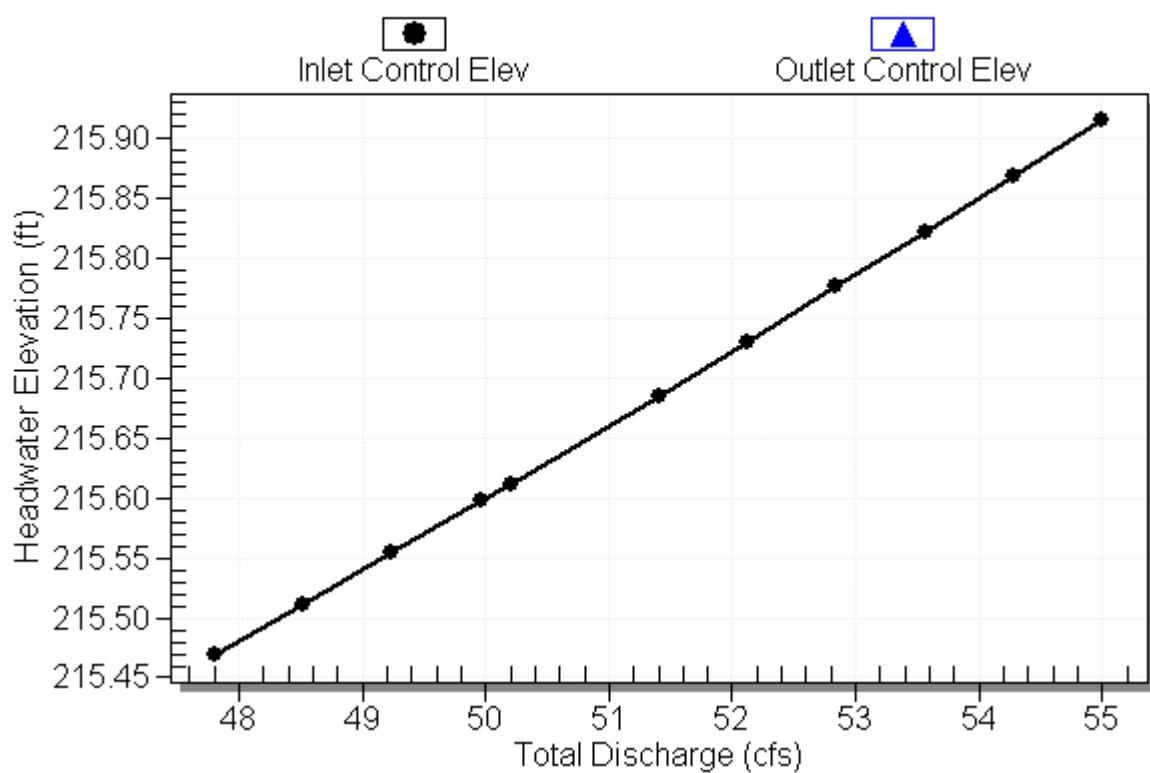
Inlet Elevation (invert): 212.00 ft, Outlet Elevation (invert): 210.00 ft

Culvert Length: 105.02 ft, Culvert Slope: 0.0190

Culvert Performance Curve Plot: 36-inch Culvert

Performance Curve

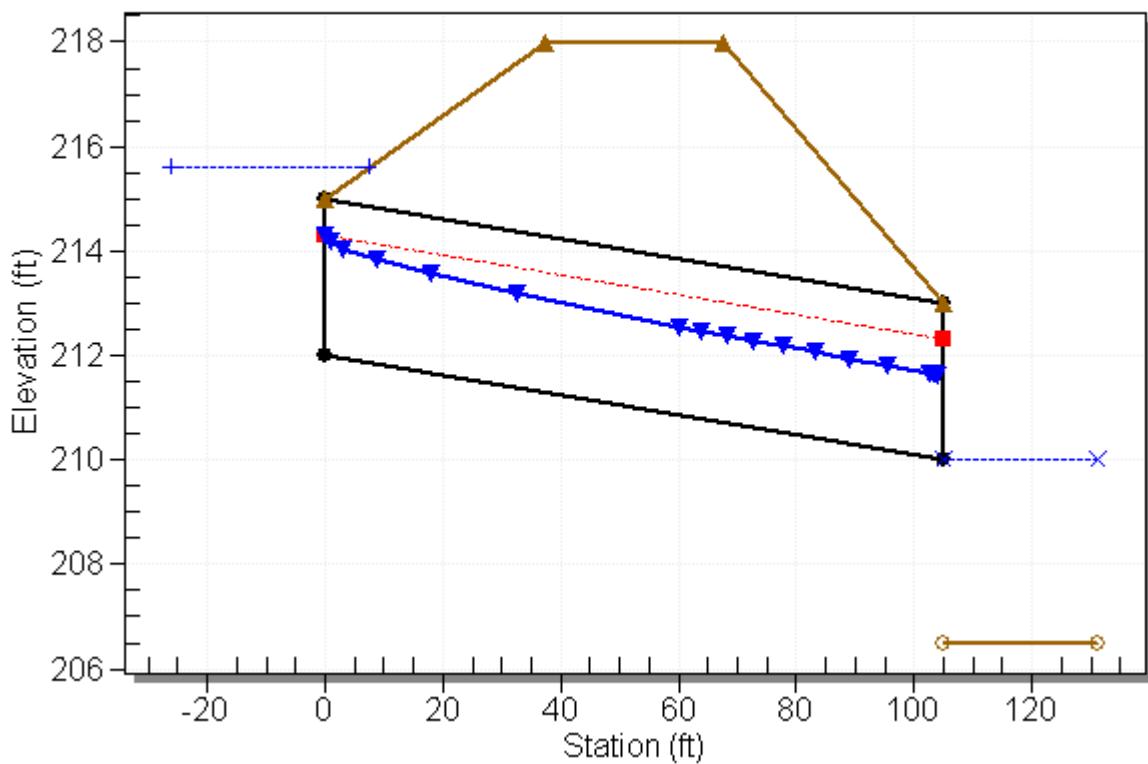
Culvert: 36-inch Culvert



Water Surface Profile Plot for Culvert: 36-inch Culvert

Crossing - Prop. 36-inch Culvert at Linnaean Ave, Design Discharge - 50.2 cfs

Culvert - 36-inch Culvert, Culvert Discharge - 50.2 cfs



Site Data - 36-inch Culvert

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 212.00 ft

Outlet Station: 105.00 ft

Outlet Elevation: 210.00 ft

Number of Barrels: 1

Culvert Data Summary - 36-inch Culvert

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Inlet Type: Conventional

Inlet Edge Condition: Grooved End in Headwall

Inlet Depression: NONE

Table 12 - Downstream Channel Rating Curve (Crossing: Prop. 36-inch Culvert at Linnaeus)

| Flow (cfs) | Water Surface Elev (ft) | Depth (ft) |
|------------|-------------------------|------------|
| 47.80 | 210.00 | 3.50 |
| 48.52 | 210.00 | 3.50 |
| 49.24 | 210.00 | 3.50 |
| 49.96 | 210.00 | 3.50 |
| 50.20 | 210.00 | 3.50 |
| 51.40 | 210.00 | 3.50 |
| 52.12 | 210.00 | 3.50 |
| 52.84 | 210.00 | 3.50 |
| 53.56 | 210.00 | 3.50 |
| 54.28 | 210.00 | 3.50 |
| 55.00 | 210.00 | 3.50 |

Tailwater Channel Data - Prop. 36-inch Culvert at Linnaean Ave

Tailwater Channel Option: Enter Constant Tailwater Elevation

Constant Tailwater Elevation: 210.00 ft

Roadway Data for Crossing: Prop. 36-inch Culvert at Linnaean Ave

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 70.00 ft

Crest Elevation: 218.00 ft

Roadway Surface: Paved

Roadway Top Width: 30.00 ft

HY-8 Culvert Analysis Report

Table 1 - Summary of Culvert Flows at Crossing: 42-inch Proposed

| Headwater Elevation (ft) | Total Discharge (cfs) | 42-inch Linnean Proposed Discharge (cfs) | Roadway Discharge (cfs) | Iterations |
|-----------------------------|-----------------------|--|----------------------------|-------------|
| 216.30 | 320.00 | 129.58 | 190.20 | 14 |
| 216.34 | 338.00 | 129.93 | 207.97 | 4 |
| 216.38 | 356.00 | 130.25 | 225.27 | 3 |
| 216.41 | 374.00 | 130.57 | 242.98 | 3 |
| 216.45 | 392.00 | 130.89 | 260.74 | 3 |
| 216.47 | 400.00 | 131.03 | 268.80 | 3 |
| 216.52 | 428.00 | 131.49 | 296.17 | 3 |
| 216.55 | 446.00 | 131.78 | 314.03 | 3 |
| 216.58 | 464.00 | 132.06 | 331.80 | 3 |
| 216.62 | 482.00 | 132.33 | 349.56 | 3 |
| 216.65 | 500.00 | 132.60 | 367.32 | 3 |
| 215.61 | 123.27 | 123.27 | 0.00 | Overtopping |

Rating Curve Plot for Crossing: 42-inch Proposed

Total Rating Curve
Crossing: 42-inch Proposed

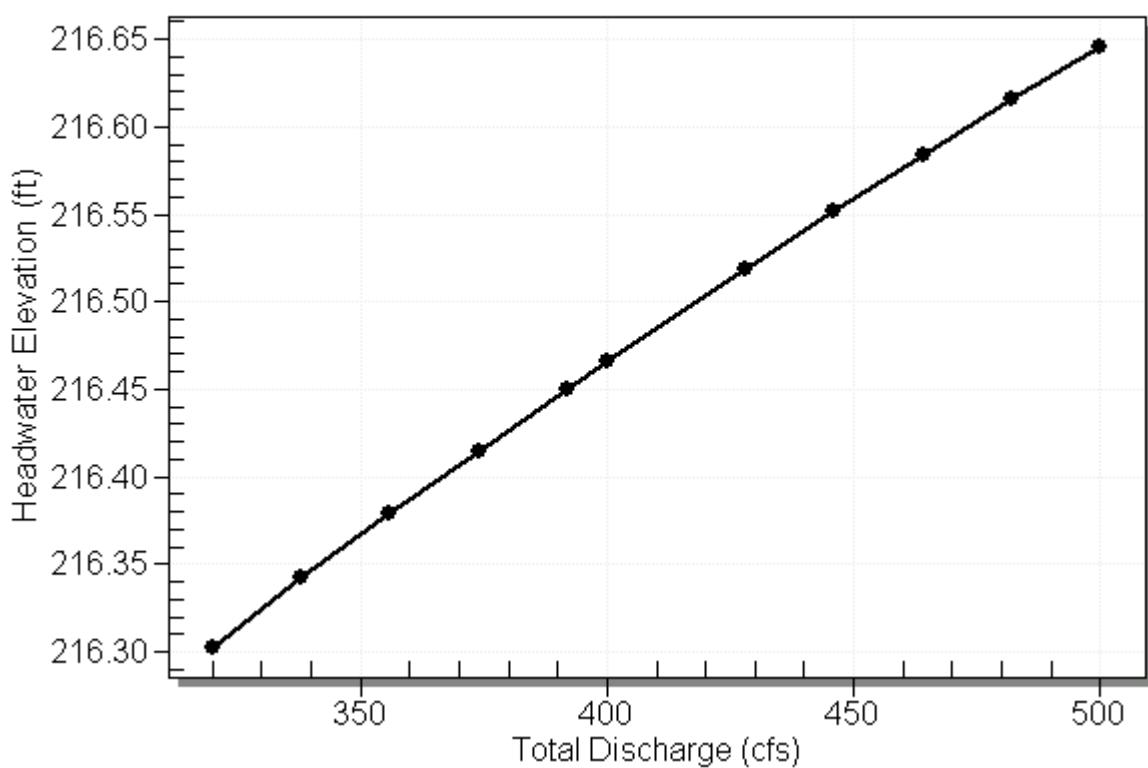


Table 2 - Culvert Summary Table: 42-inch Linnean Proposed

| Total Discharge (cfs) | Culvert Discharge (cfs) | Headwater Elevation (ft) | Inlet Control Depth (ft) | Outlet Control Depth (ft) | Flow Type | Normal Depth (ft) | Critical Depth (ft) | Outlet Depth (ft) | Tailwater Depth (ft) | Outlet Velocity (ft/s) | Tailwater Velocity (ft/s) |
|-----------------------|-------------------------|--------------------------|--------------------------|---------------------------|-----------|-------------------|---------------------|-------------------|----------------------|------------------------|---------------------------|
| 320.00 | 129.58 | 216.30 | 9.302 | 0.0* | 5-S2n | 1.352 | 3.427 | 2.254 | 1.878 | 19.815 | 18.649 |
| 338.00 | 129.93 | 216.34 | 9.341 | 0.0* | 5-S2n | 1.354 | 3.431 | 2.257 | 1.926 | 19.833 | 18.913 |
| 356.00 | 130.25 | 216.38 | 9.378 | 0.0* | 5-S2n | 1.356 | 3.435 | 2.260 | 1.972 | 19.851 | 19.168 |
| 374.00 | 130.57 | 216.41 | 9.414 | 0.0* | 5-S2n | 1.358 | 3.439 | 2.263 | 2.017 | 19.869 | 19.414 |
| 392.00 | 130.89 | 216.45 | 9.450 | 0.0* | 5-S2n | 1.360 | 3.443 | 2.263 | 2.061 | 19.917 | 19.650 |
| 400.00 | 131.03 | 216.47 | 9.466 | 0.0* | 5-S2n | 1.361 | 3.445 | 2.265 | 2.080 | 19.920 | 19.752 |
| 428.00 | 131.49 | 216.52 | 9.518 | 0.0* | 5-S2n | 1.364 | 3.451 | 2.271 | 2.144 | 19.931 | 20.097 |
| 446.00 | 131.78 | 216.55 | 9.551 | 0.0* | 5-S2n | 1.366 | 3.455 | 2.275 | 2.184 | 19.938 | 20.312 |
| 464.00 | 132.06 | 216.58 | 9.583 | 0.0* | 5-S2n | 1.367 | 3.458 | 2.277 | 2.224 | 19.954 | 20.518 |
| 482.00 | 132.33 | 216.62 | 9.615 | 0.0* | 5-S2n | 1.369 | 3.462 | 2.280 | 2.262 | 19.970 | 20.719 |
| 500.00 | 132.60 | 216.65 | 9.646 | 0.0* | 5-S2n | 1.371 | 3.465 | 2.282 | 2.299 | 19.987 | 20.915 |

* theoretical depth is impractical. Depth reported is corrected.

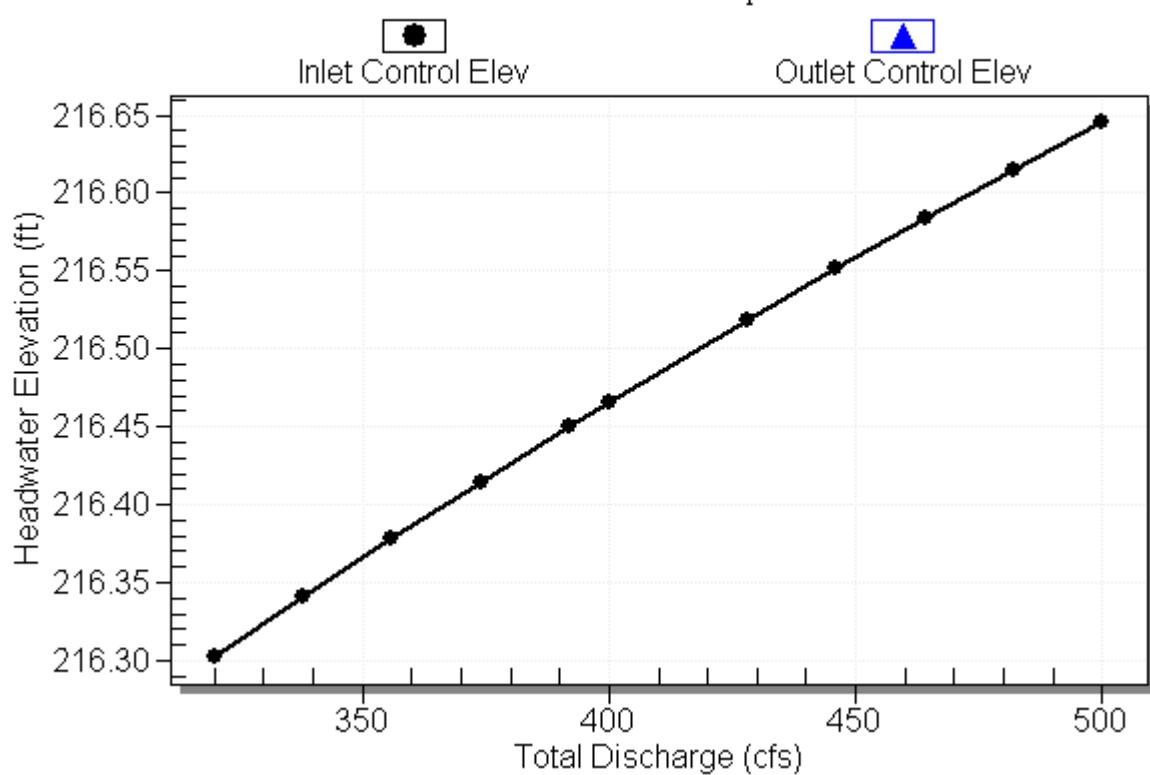
Inlet Elevation (invert): 207.00 ft, Outlet Elevation (invert): 204.63 ft

Culvert Length: 17.16 ft, Culvert Slope: 0.1394

Culvert Performance Curve Plot: 42-inch Linnean Proposed

Performance Curve

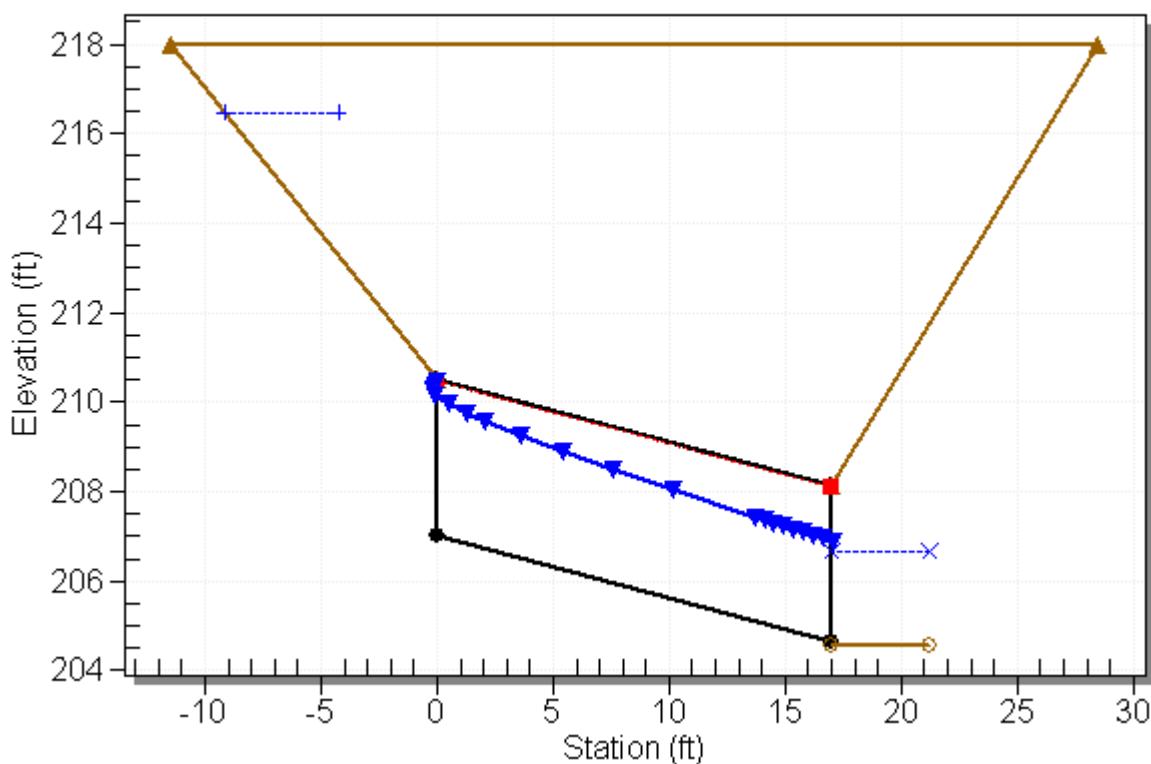
Culvert: 42-inch Linnean Proposed



Water Surface Profile Plot for Culvert: 42-inch Linnean Proposed

Crossing - 42-inch Proposed, Design Discharge - 400.0 cfs

Culvert - 42-inch Linnean Proposed, Culvert Discharge - 131.0 cfs



Site Data - 42-inch Linnean Proposed

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 207.00 ft

Outlet Station: 17.00 ft

Outlet Elevation: 204.63 ft

Number of Barrels: 1

Culvert Data Summary - 42-inch Linnean Proposed

Barrel Shape: Circular

Barrel Diameter: 3.50 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Inlet Type: Conventional

Inlet Edge Condition: Square Edge with Headwall

Inlet Depression: NONE

Table 3 - Downstream Channel Rating Curve (Crossing: 42-inch Proposed)

| Flow (cfs) | Water Surface Elev (ft) | Depth (ft) | Velocity (ft/s) | Shear (psf) | Froude Number |
|------------|-------------------------|------------|-----------------|-------------|---------------|
| 320.00 | 206.46 | 1.88 | 18.65 | 2.70 | 3.05 |
| 338.00 | 206.51 | 1.93 | 18.91 | 2.76 | 3.06 |
| 356.00 | 206.55 | 1.97 | 19.17 | 2.83 | 3.07 |
| 374.00 | 206.60 | 2.02 | 19.41 | 2.89 | 3.08 |
| 392.00 | 206.64 | 2.06 | 19.65 | 2.96 | 3.09 |
| 400.00 | 206.66 | 2.08 | 19.75 | 2.98 | 3.09 |
| 428.00 | 206.72 | 2.14 | 20.10 | 3.08 | 3.10 |
| 446.00 | 206.76 | 2.18 | 20.31 | 3.13 | 3.11 |
| 464.00 | 206.80 | 2.22 | 20.52 | 3.19 | 3.12 |
| 482.00 | 206.84 | 2.26 | 20.72 | 3.25 | 3.13 |
| 500.00 | 206.88 | 2.30 | 20.91 | 3.30 | 3.13 |

Tailwater Channel Data - 42-inch Proposed

Tailwater Channel Option: Trapezoidal Channel

Bottom Width: 3.50 ft

Side Slope (H:V): 3.00 (_:1)

Channel Slope: 0.0230

Channel Manning's n: 0.0130

Channel Invert Elevation: 204.58 ft

Roadway Data for Crossing: 42-inch Proposed

Roadway Profile Shape: Irregular Roadway Shape (coordinates)

Roadway Surface: Paved

Roadway Top Width: 40.00 ft



BY: **EL**
CHKD. BY: **KMD**

DATE: **3/25/2013**
DATE: **4/16/2013**

SUBJECT: **Tributary D
Upstream of Linnaean Ave.
Riser Structure**

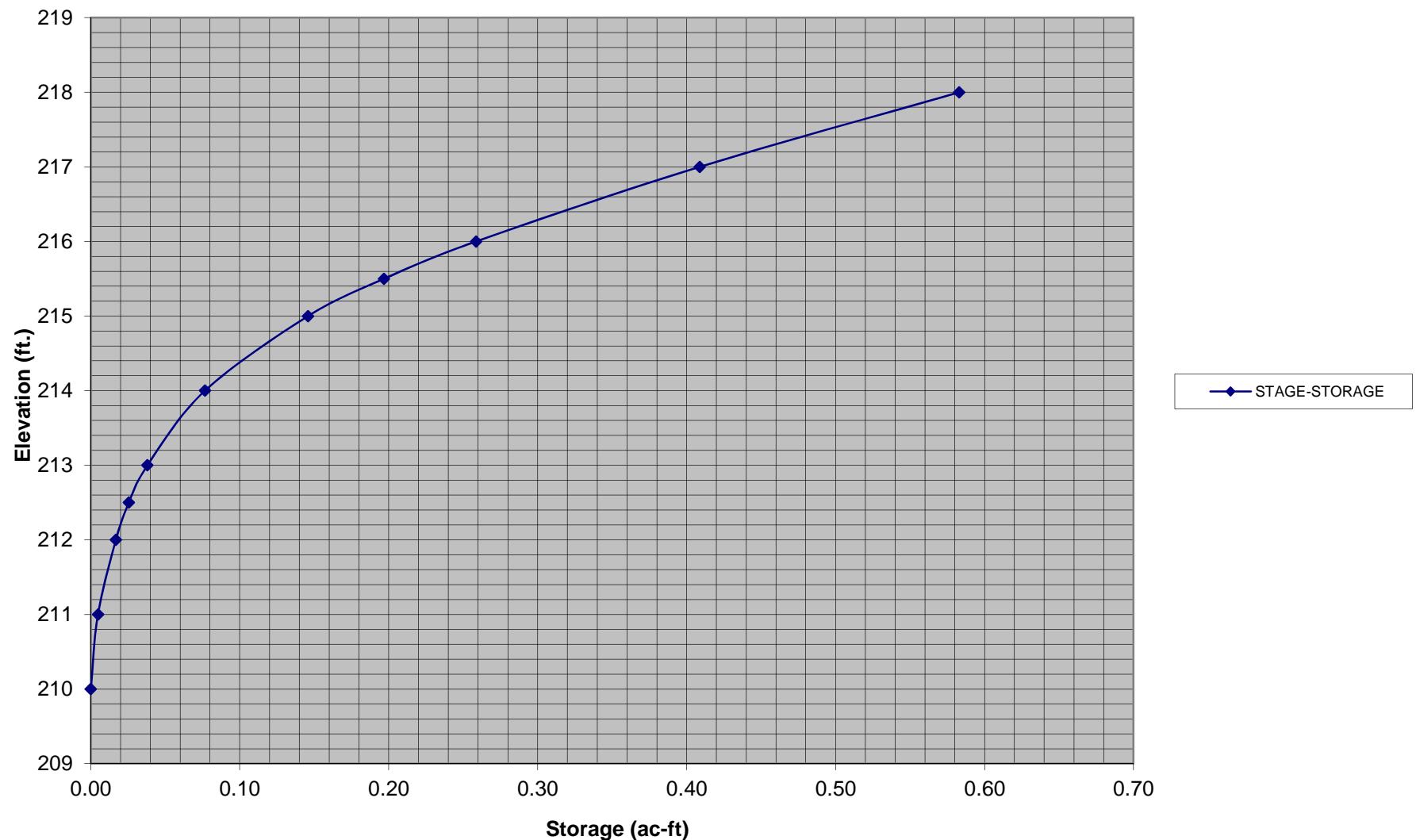
Perm.Pool Elev.: **212**

STAGE-STORAGE

| WSE Elev. | Area (sq.ft.) | Av. Area (sq.ft.) | Height (ft.) | Volume (cu.ft.) | Total Vol. (cu.ft.) | Total Vol. (ac.ft.) | Dry Volume (cu.ft) |
|--------------|------------------|----------------------|-----------------|--------------------|------------------------|------------------------|-----------------------|
| 210 | 90 | | 0 | 0 | 0 | 0.00 | 0.00 |
| 211 | 333 | 212 | 1 | 212 | 212 | 0.00 | 0.00 |
| 212 | 713 | 523 | 1 | 523 | 735 | 0.02 | 0.00 |
| 212.5 | 796 | 755 | 0.5 | 377 | 1112 | 0.03 | 0.01 |
| 213 | 1383 | 1090 | 0.5 | 545 | 1657 | 0.04 | 0.02 |
| 214 | 1983 | 1683 | 1 | 1683 | 3340 | 0.08 | 0.06 |
| 215 | 4049 | 3016 | 1 | 3016 | 6356 | 0.15 | 0.13 |
| 215.5 | 4833 | 4441 | 0.5 | 2221 | 8576 | 0.20 | 0.18 |
| 216 | 5923 | 5378 | 0.5 | 2689 | 11265 | 0.26 | 0.24 |
| 217 | 7154 | 6539 | 1 | 6539 | 17804 | 0.41 | 0.39 |
| 218 | 8024 | 7589 | 1 | 7589 | 25393 | 0.58 | 0.57 |



TRIBUTARY D RISER UPSTREAM OF LINNAEAN AVE.
STAGE-STORAGE





Stantec

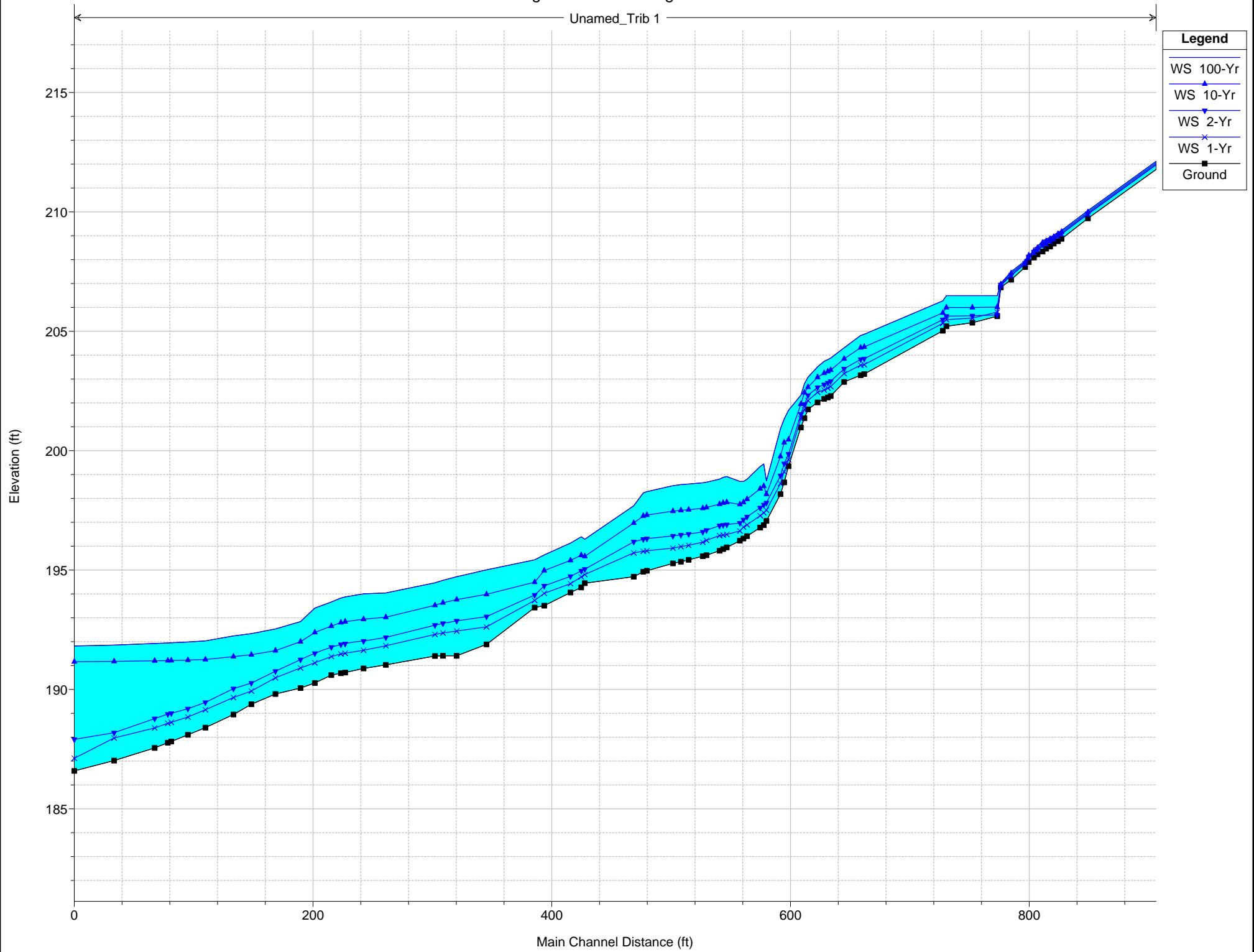
BY: EI
CHKD. BY KMD

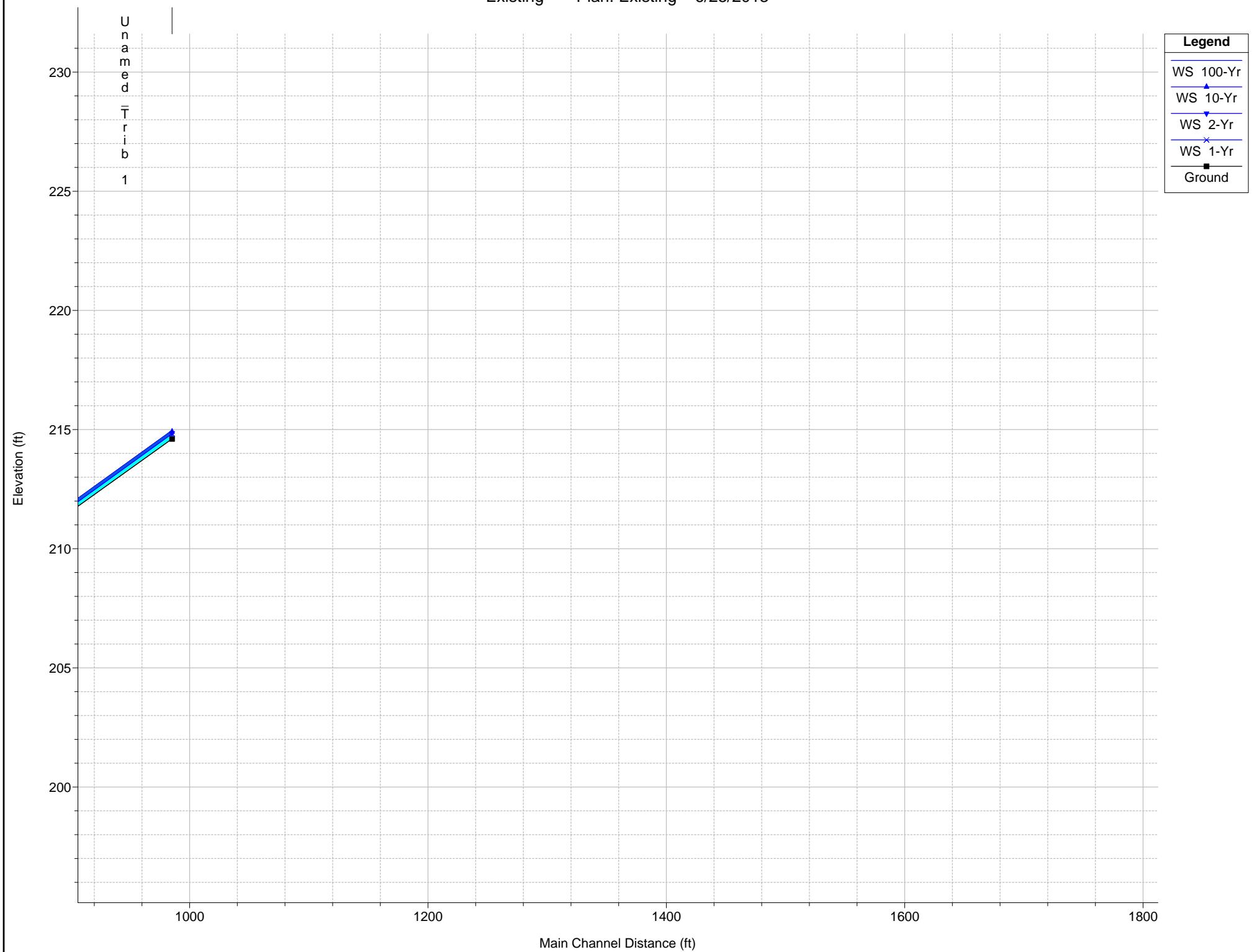
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DATE: 4/16/2013

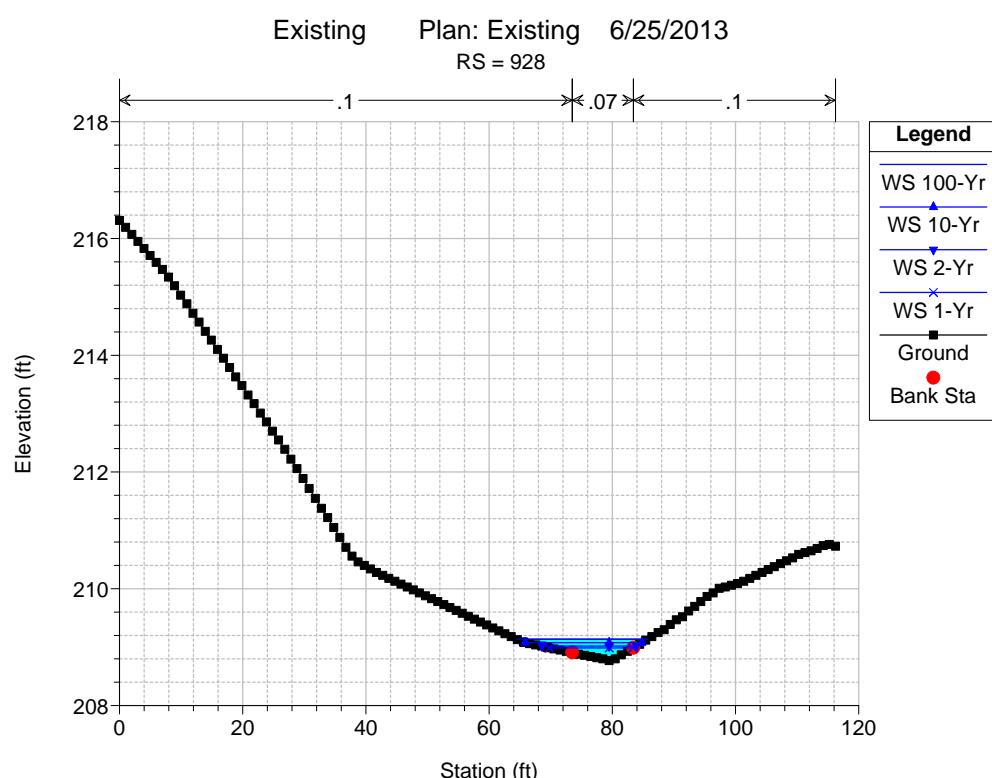
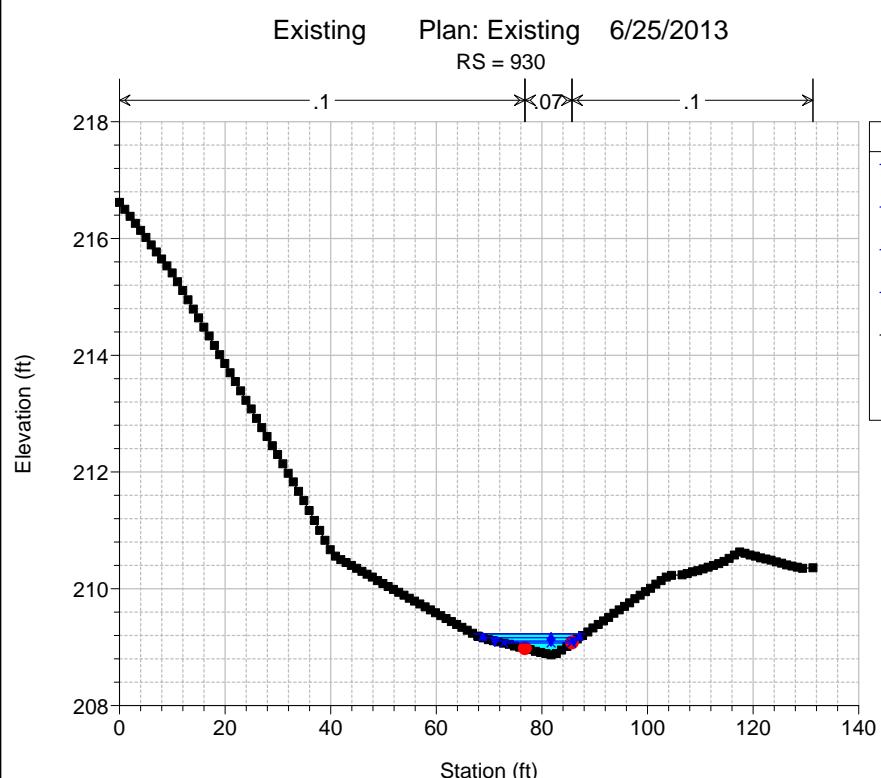
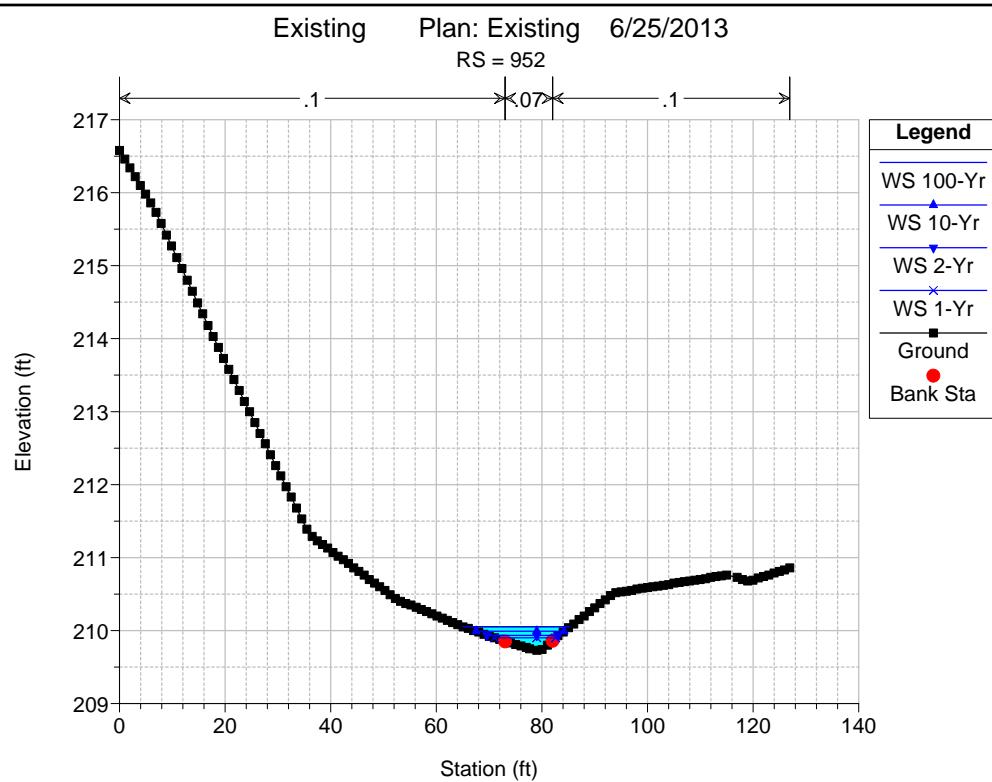
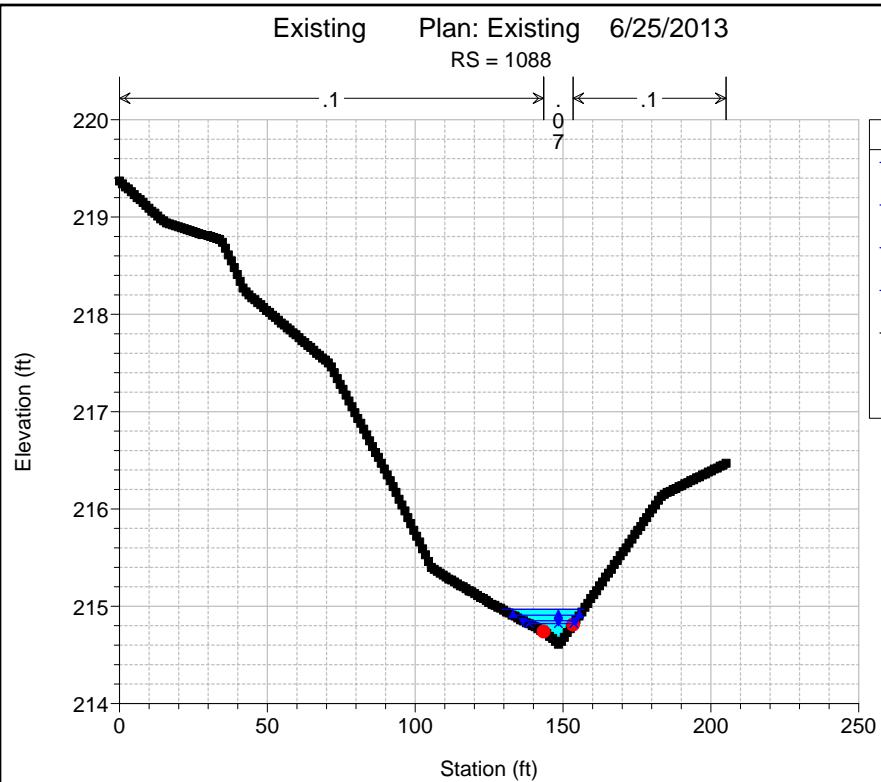
SUBJECT: Tributary D
Upstream of Linnaean Ave
Riser Structure

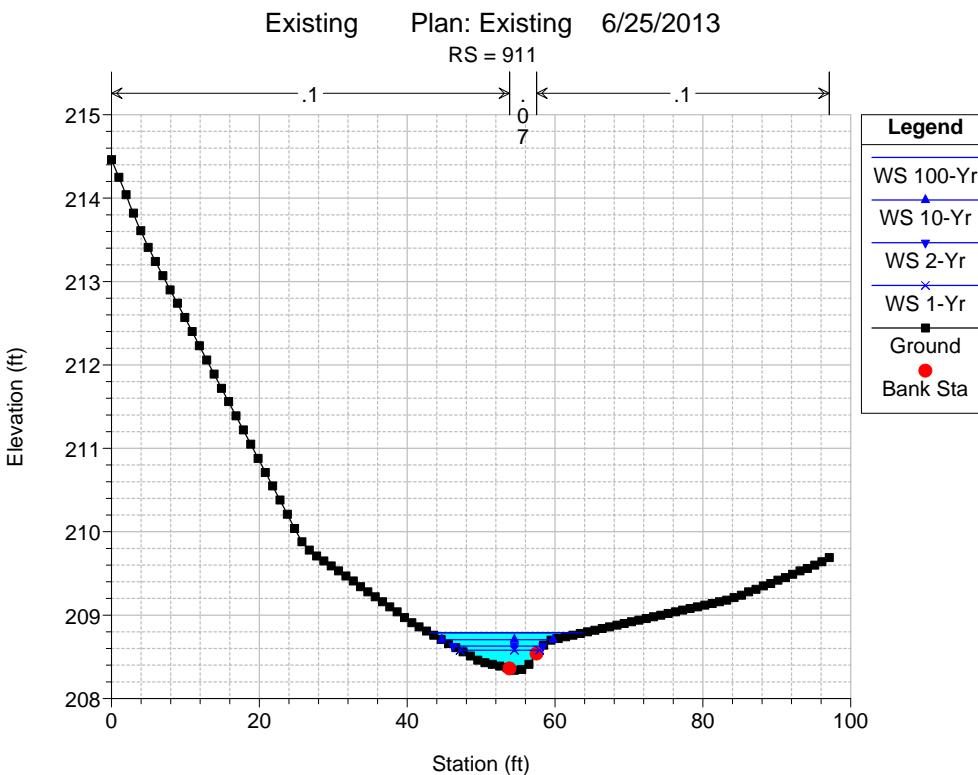
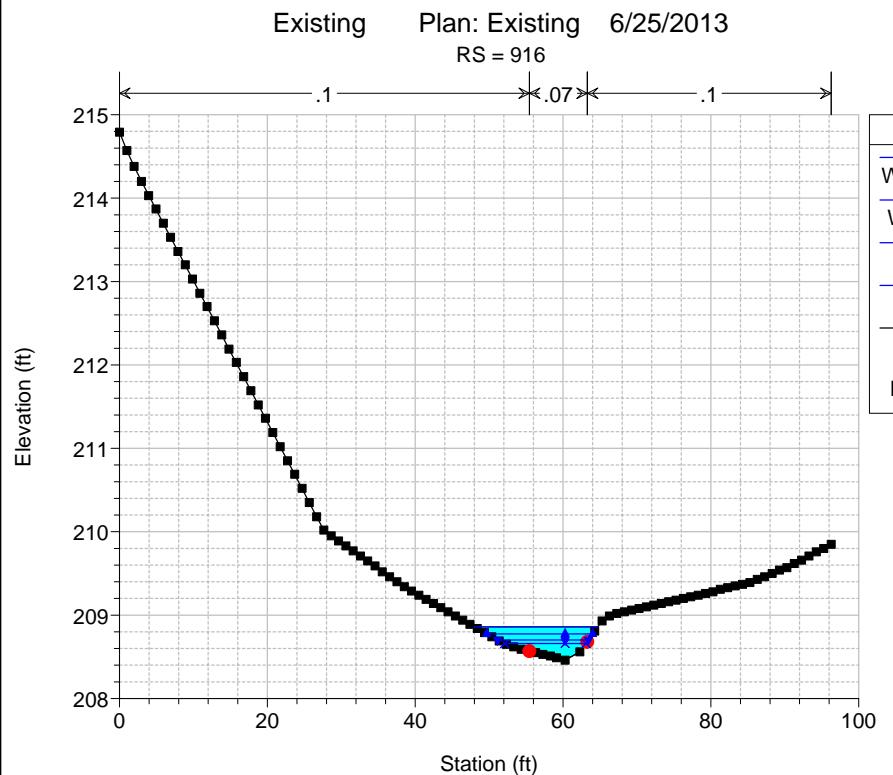
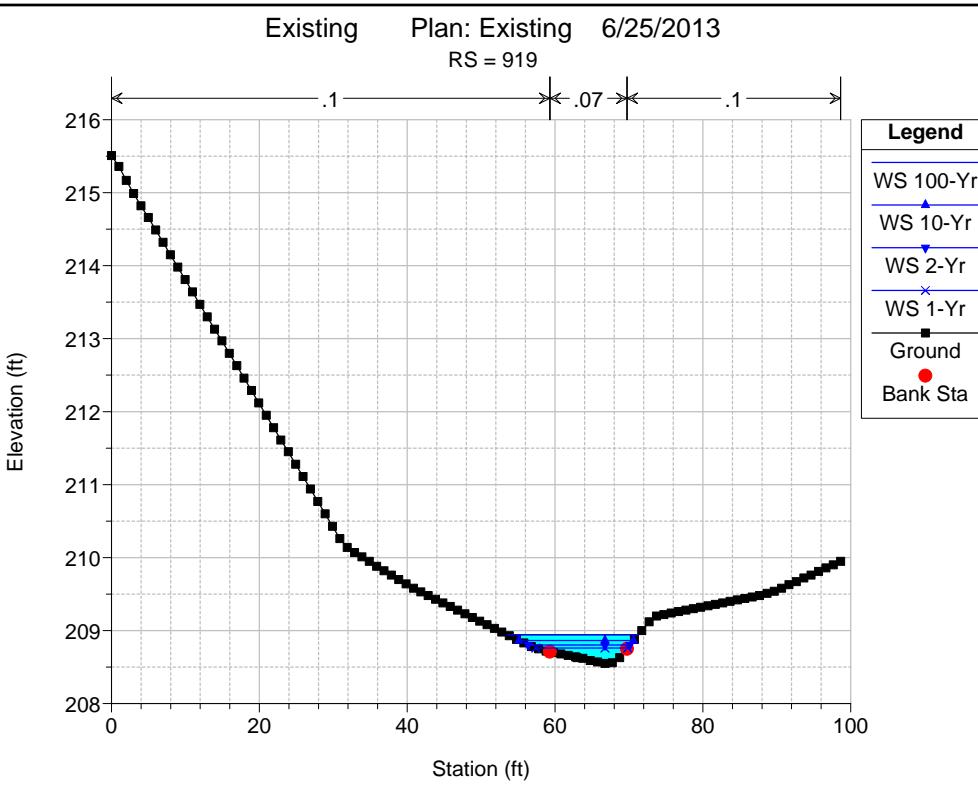
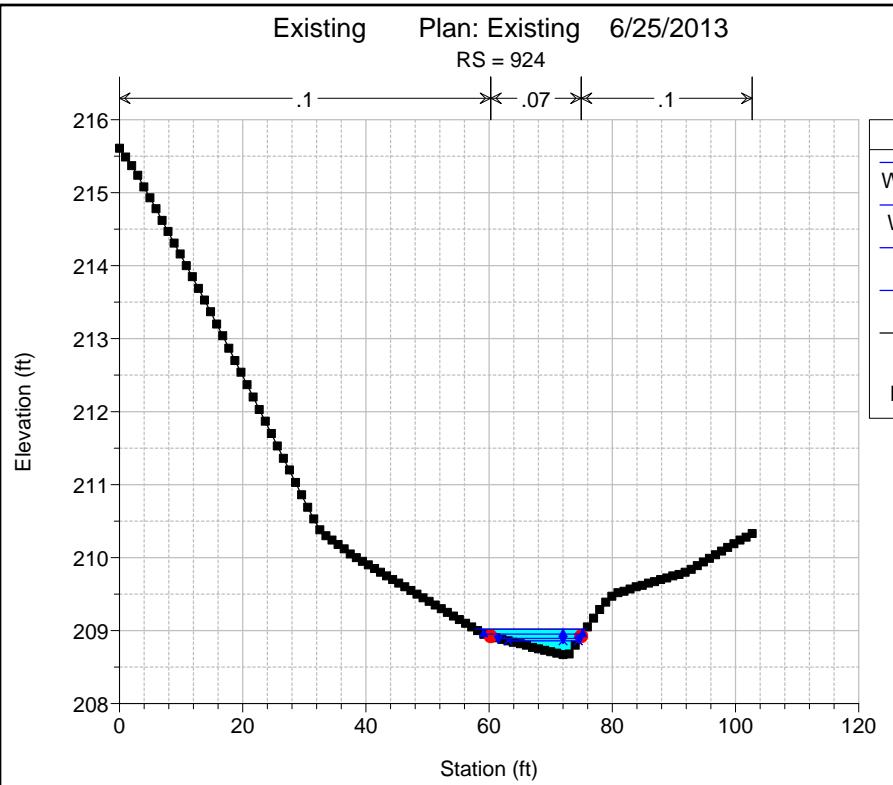
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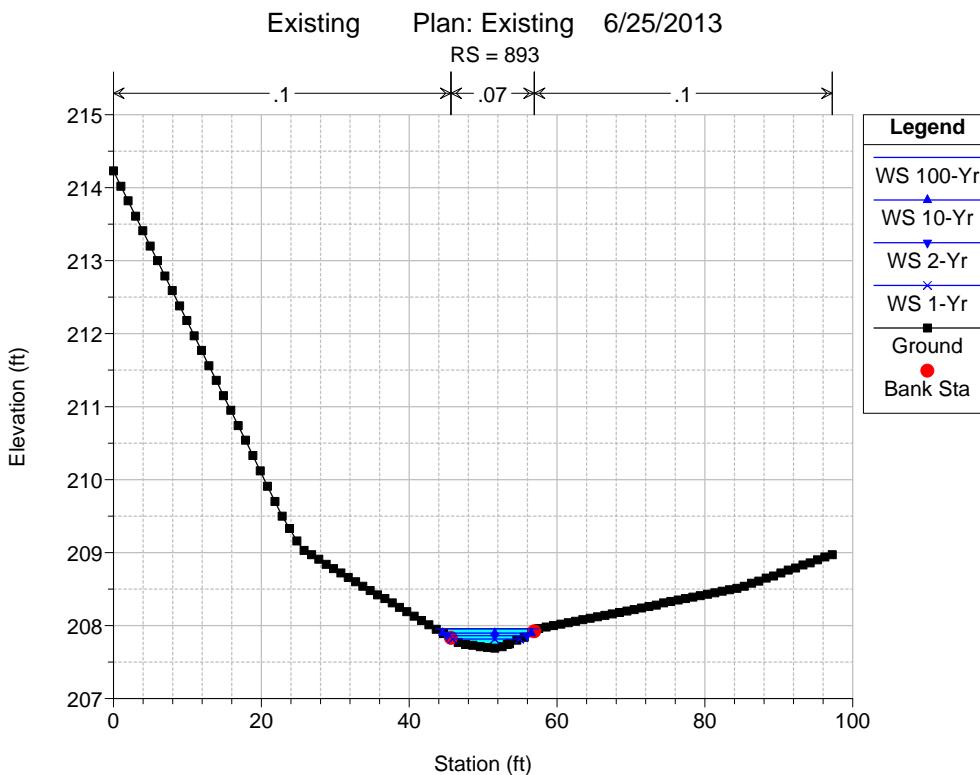
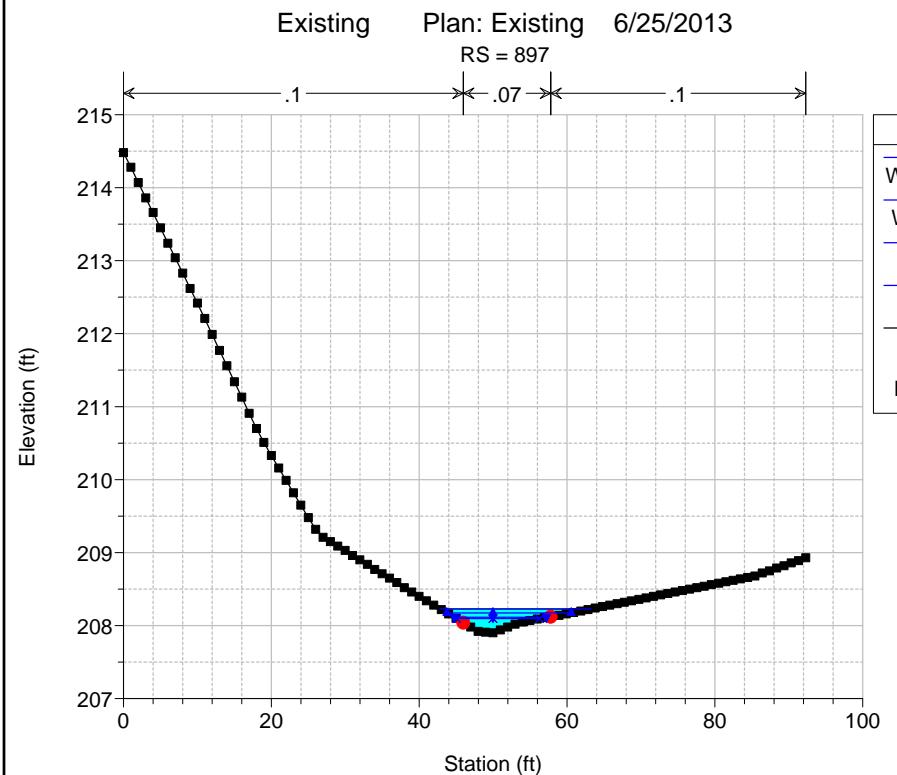
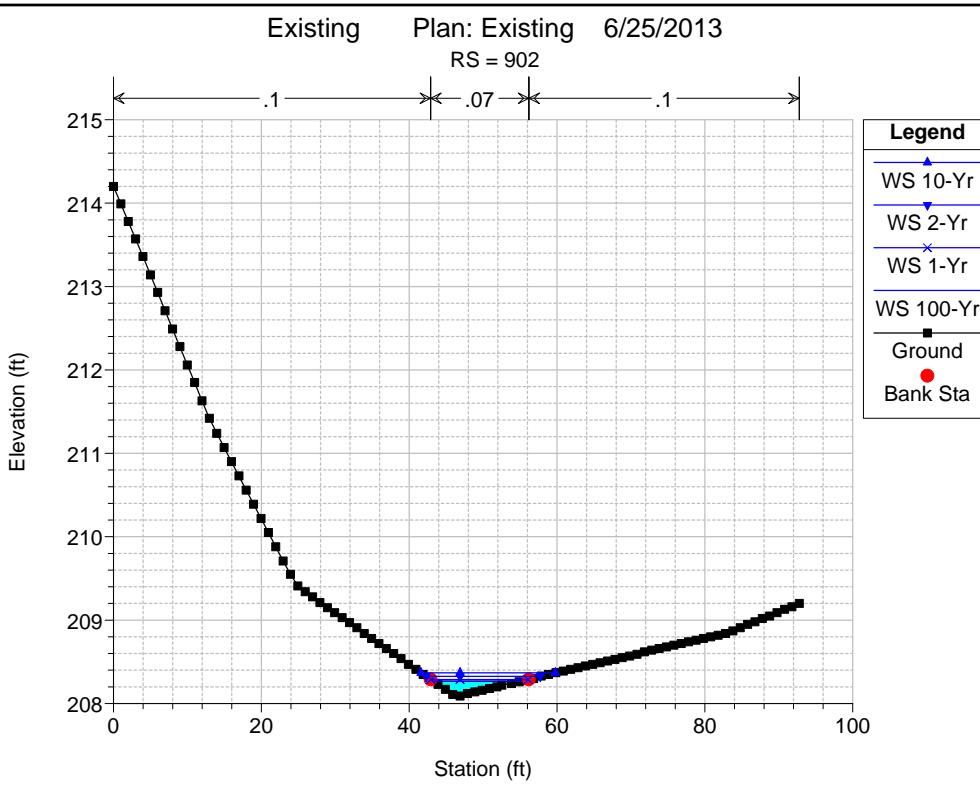
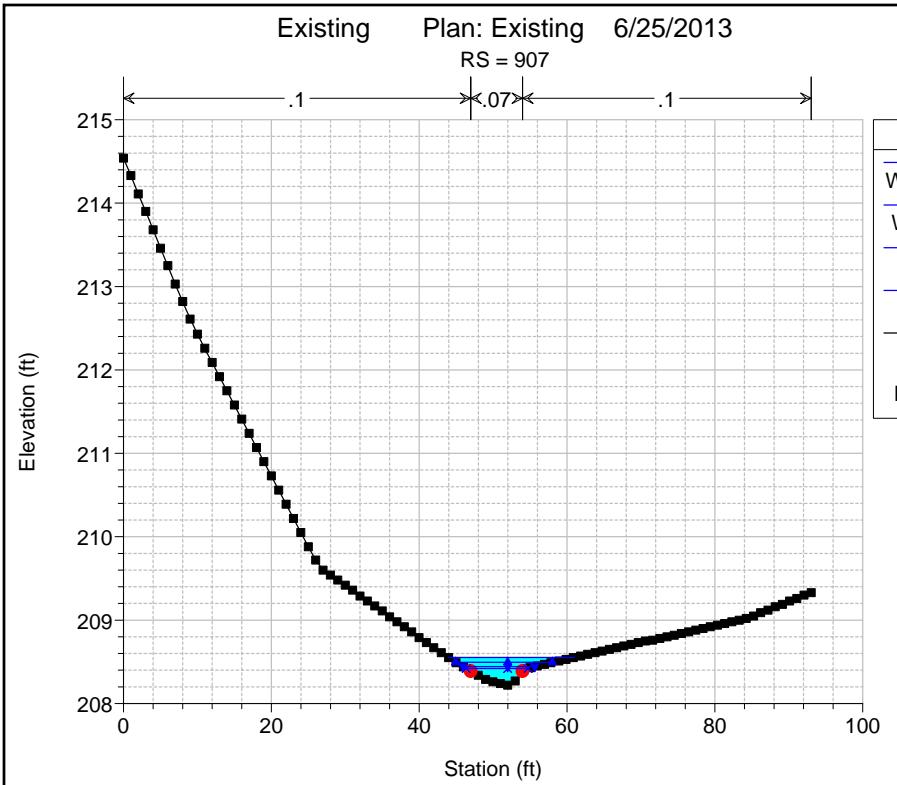
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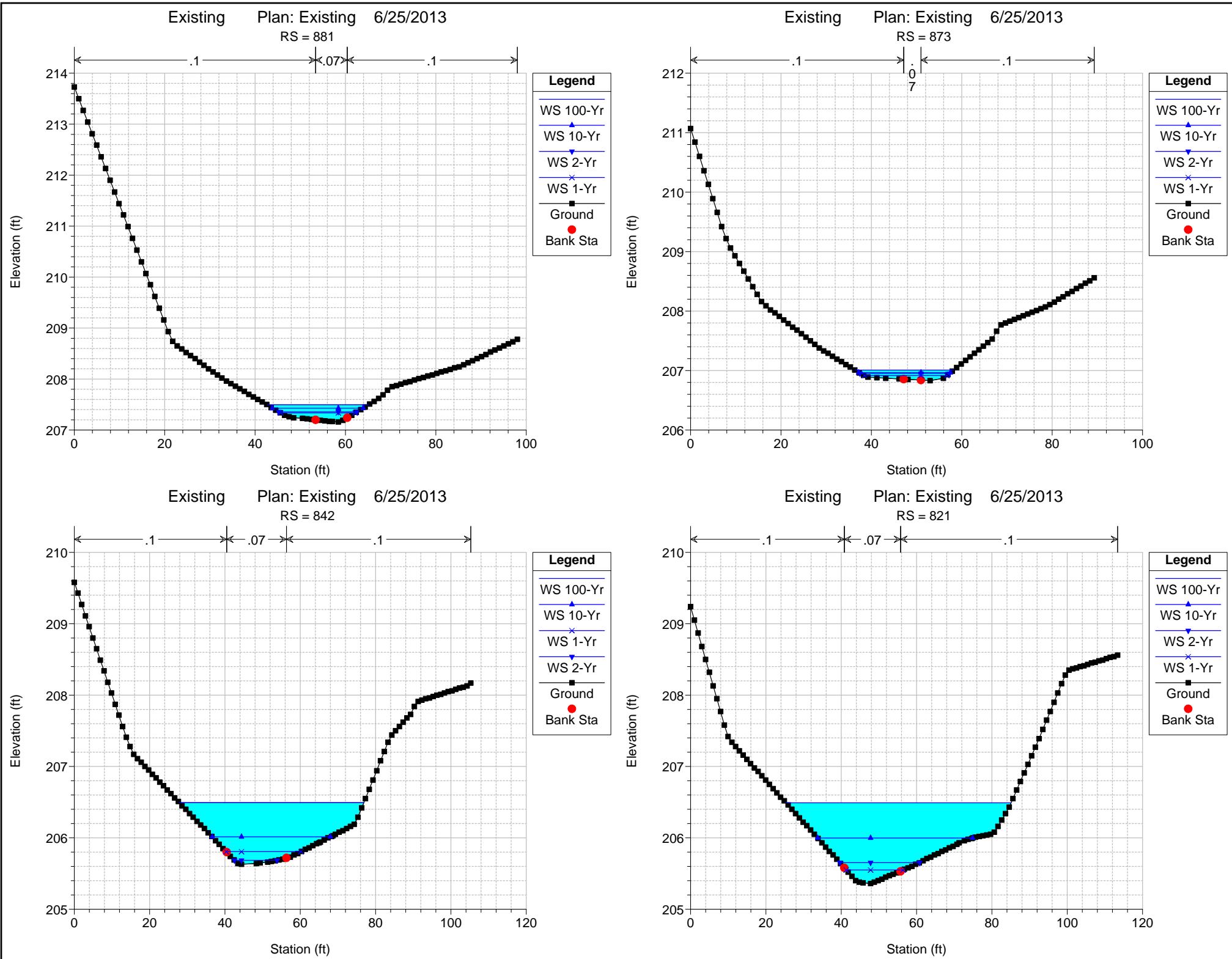


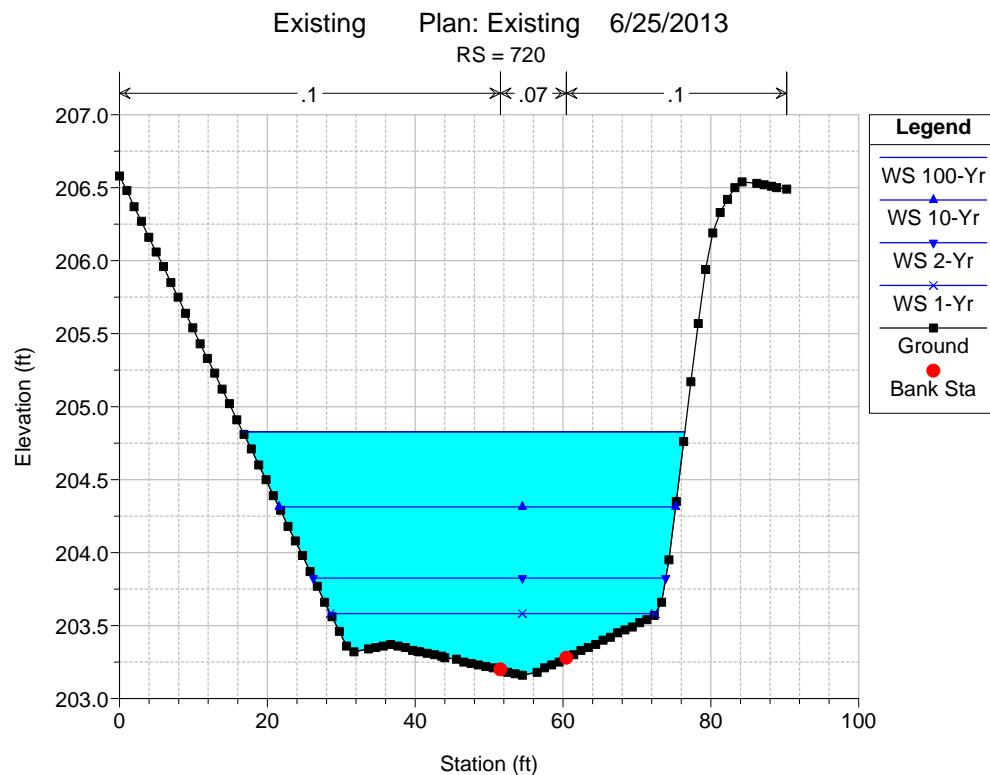
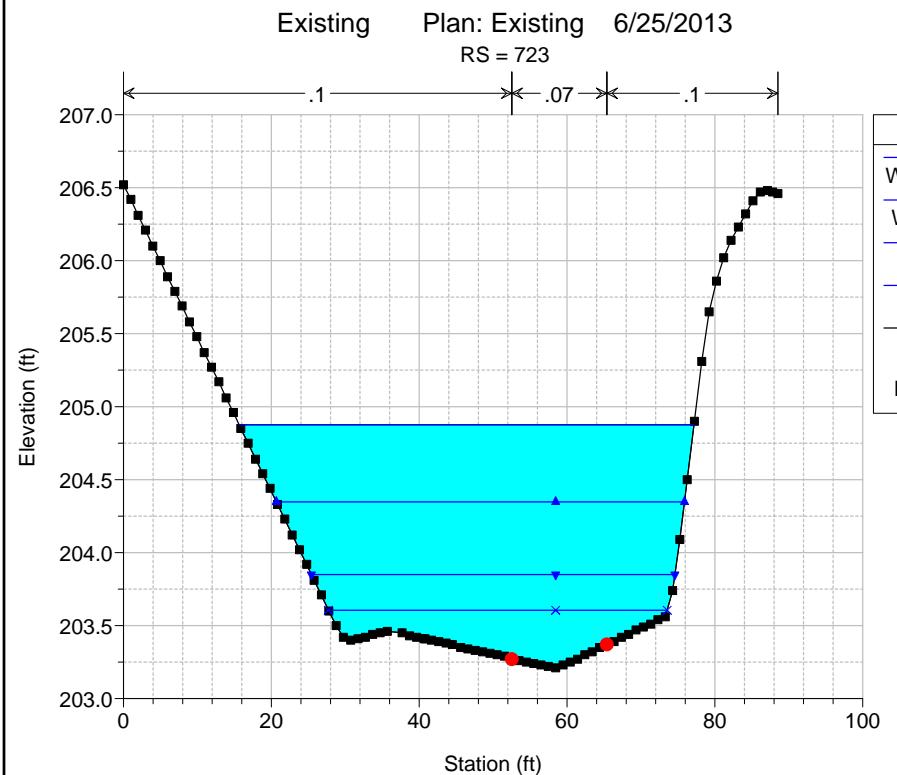
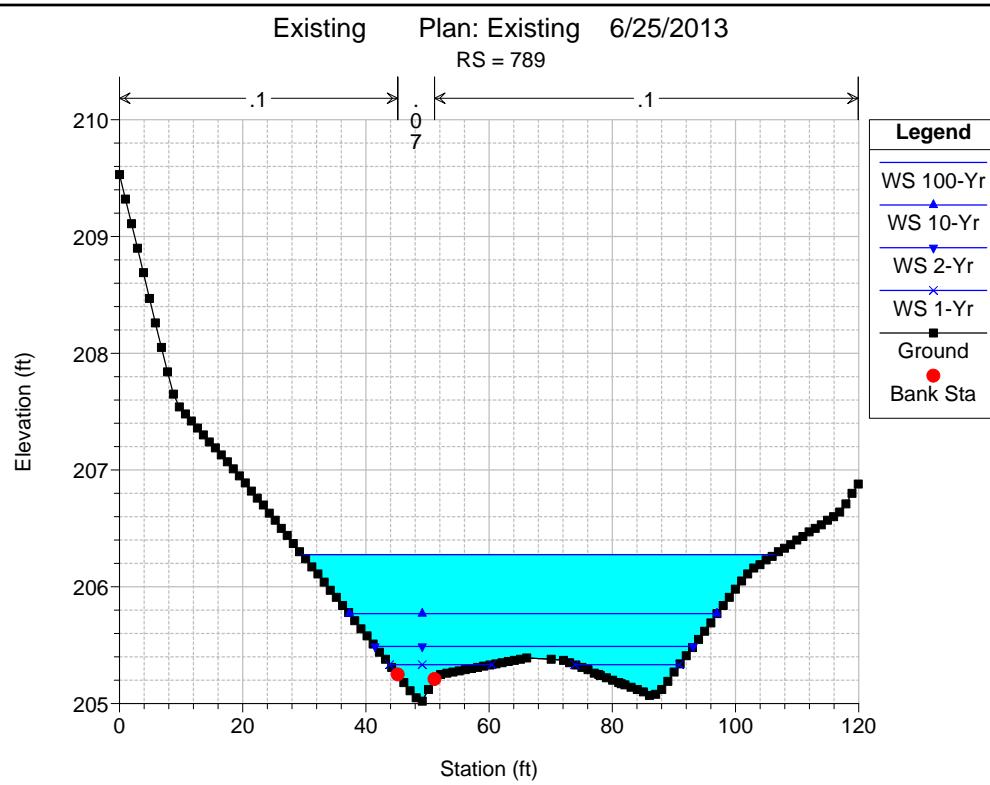
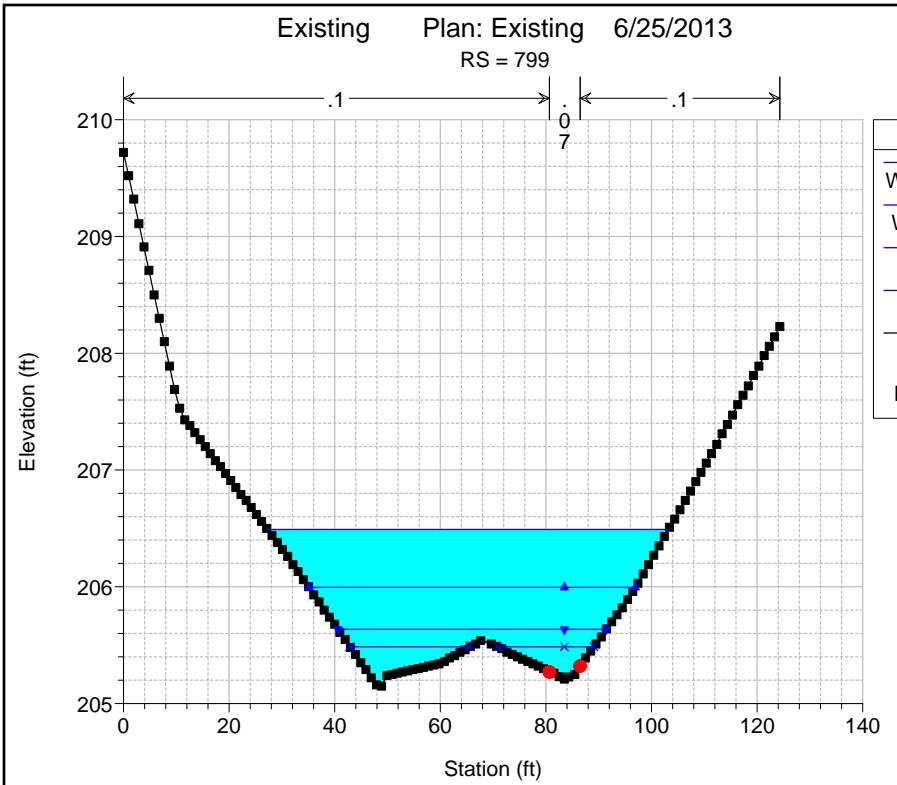


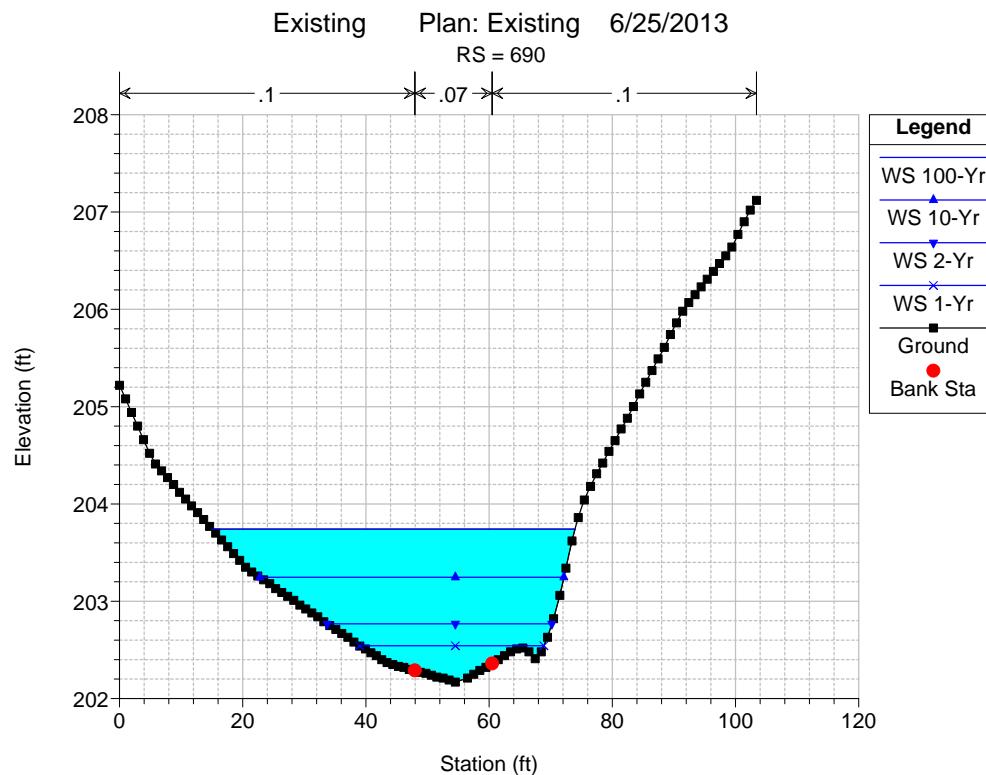
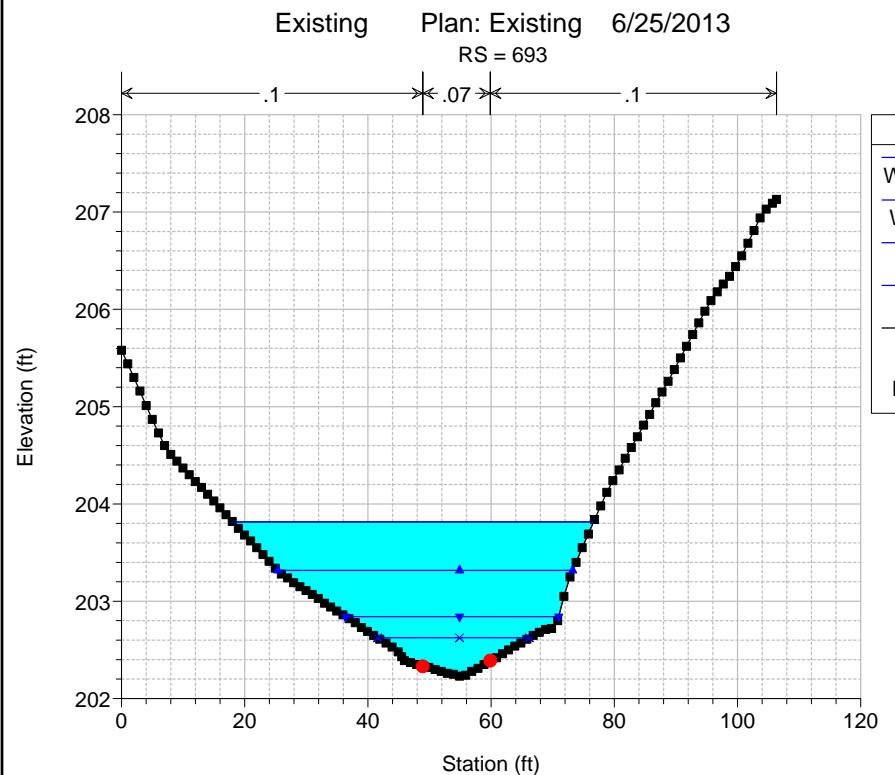
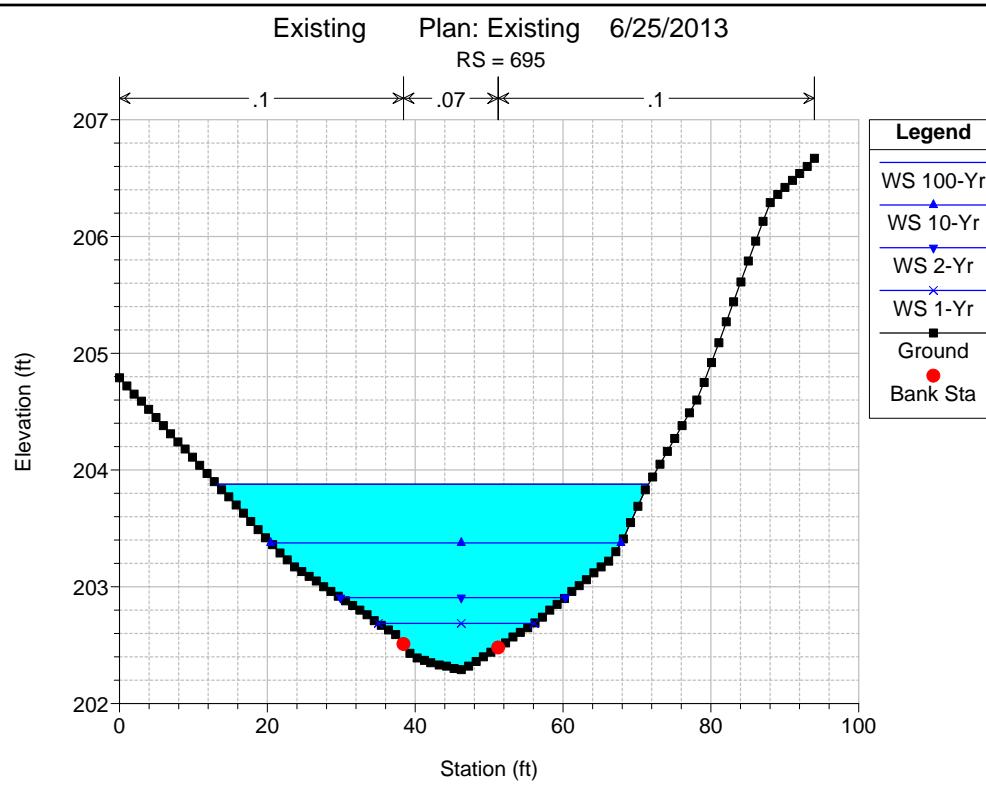
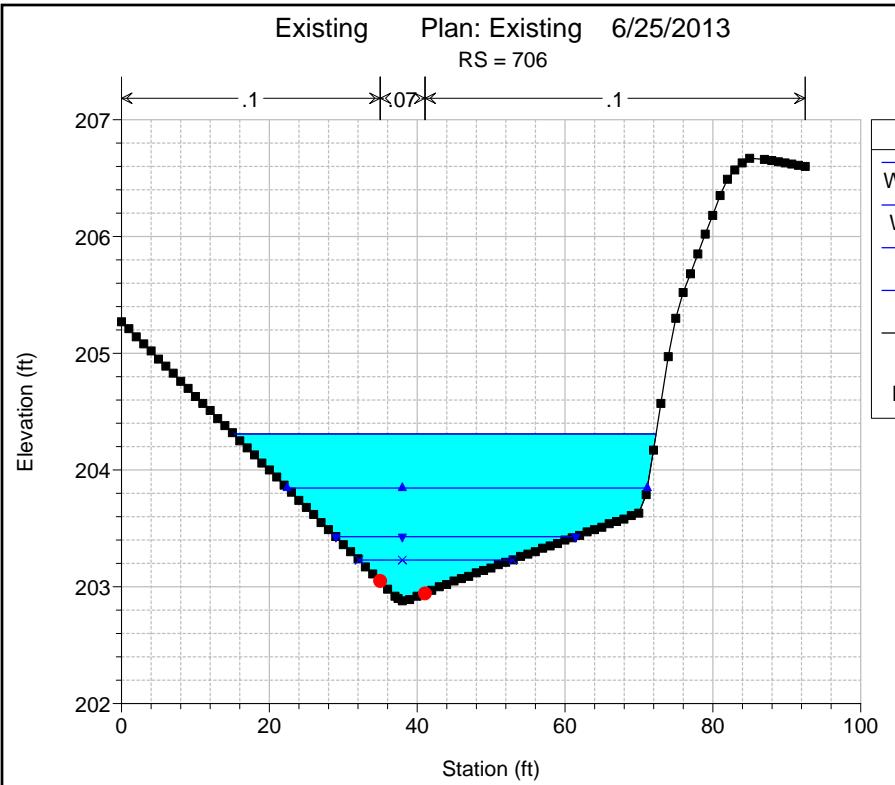


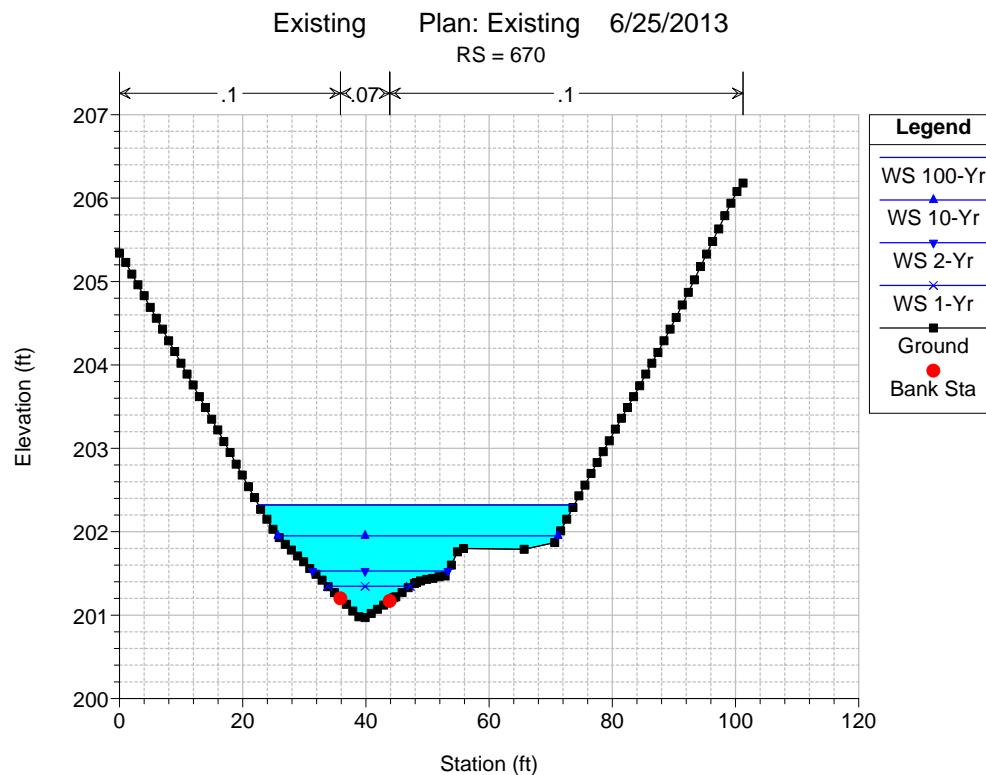
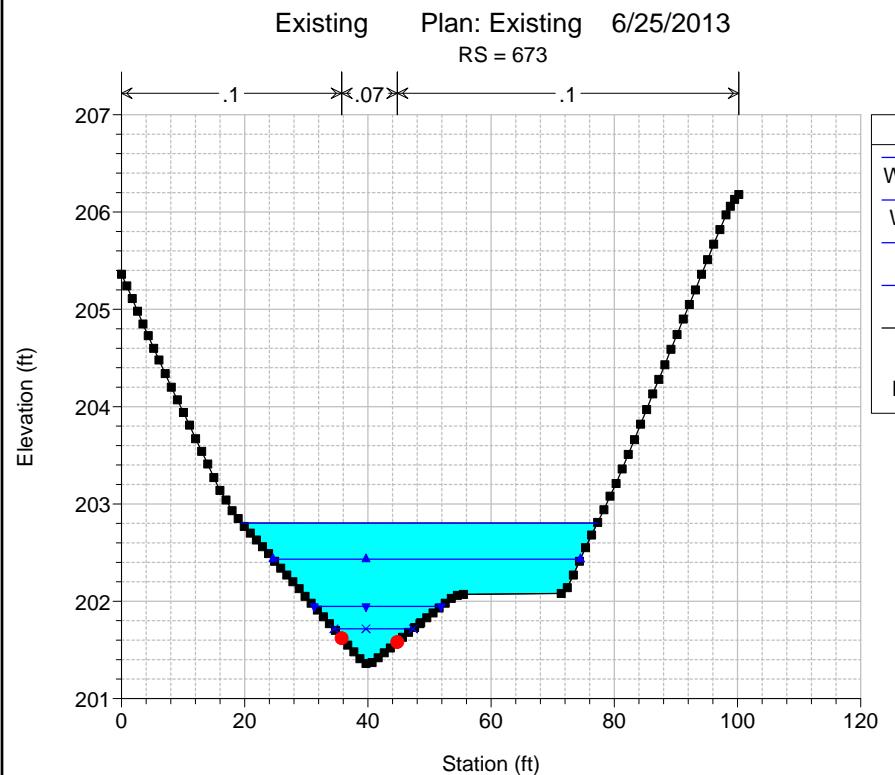
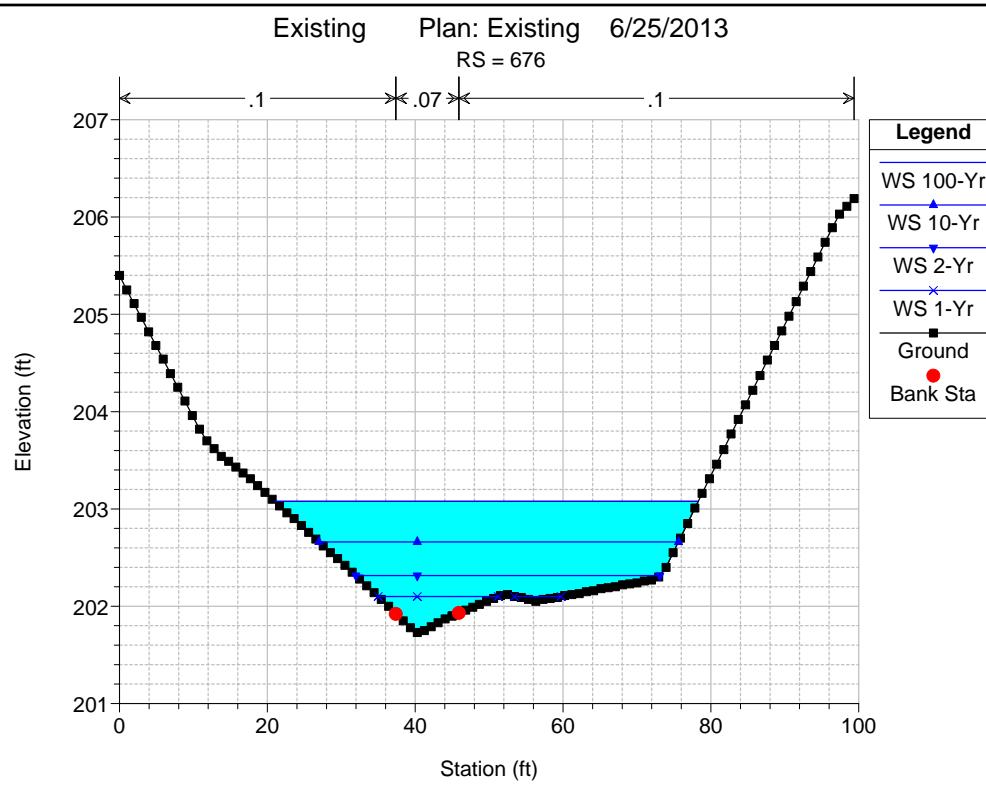
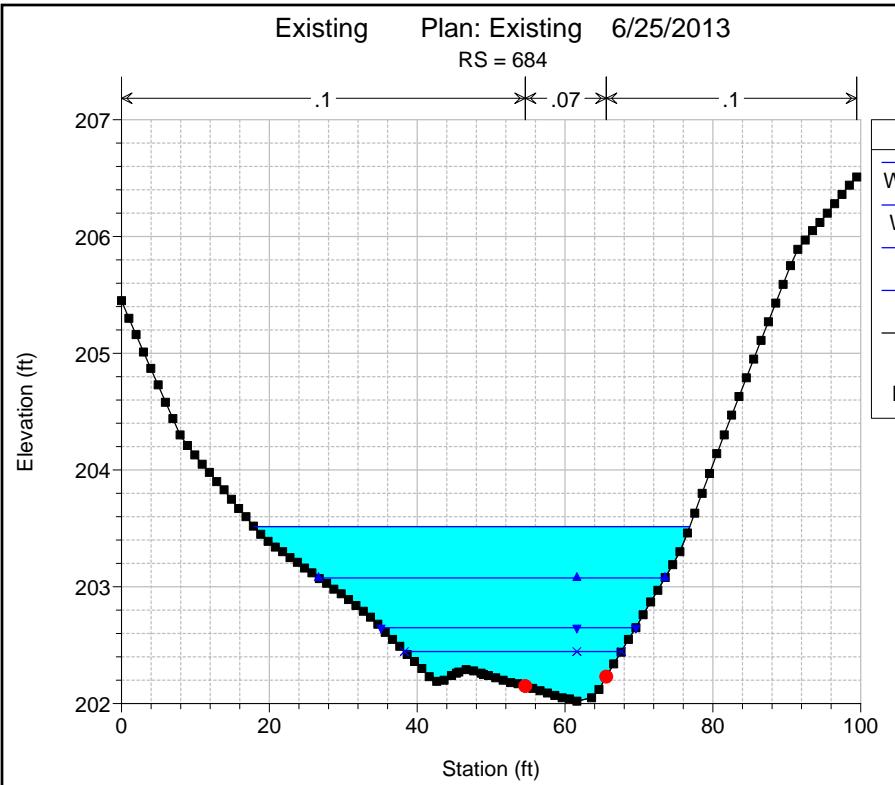


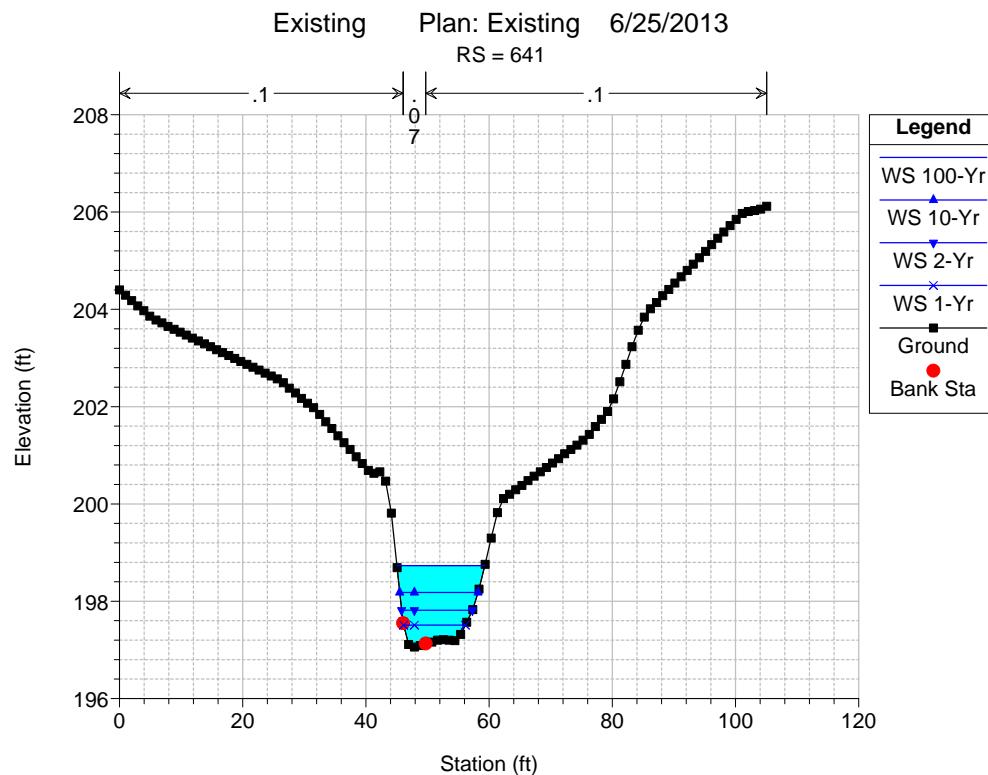
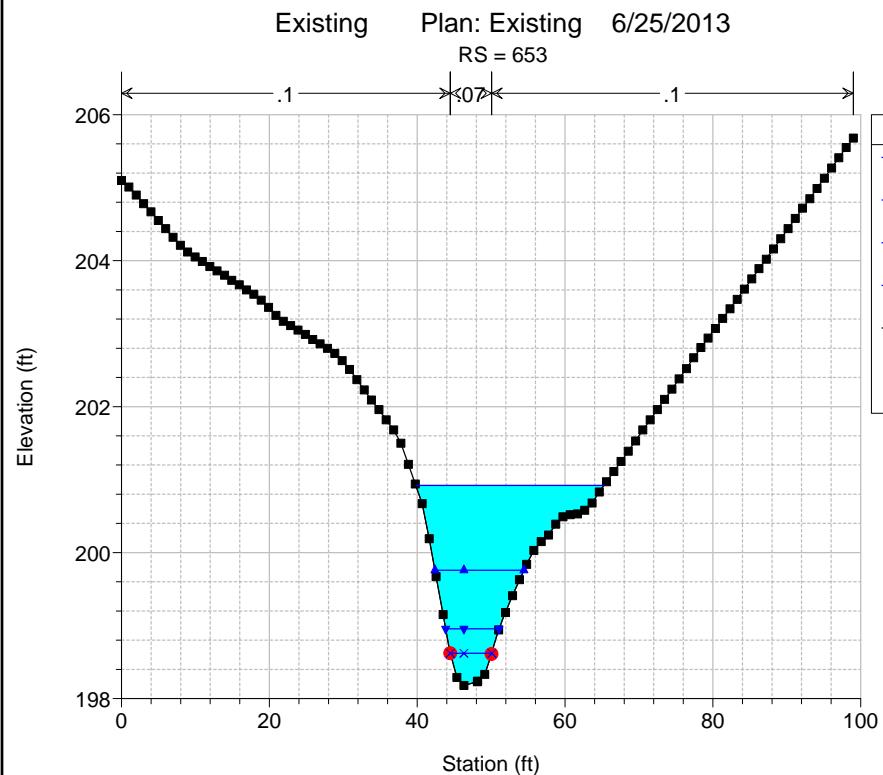
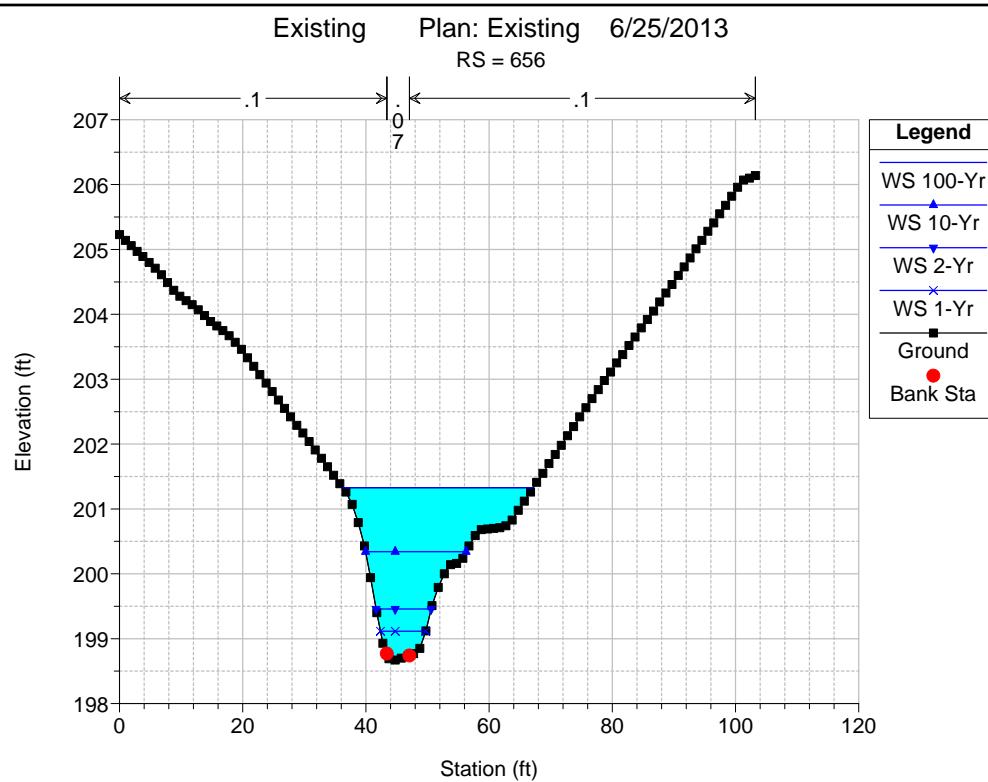
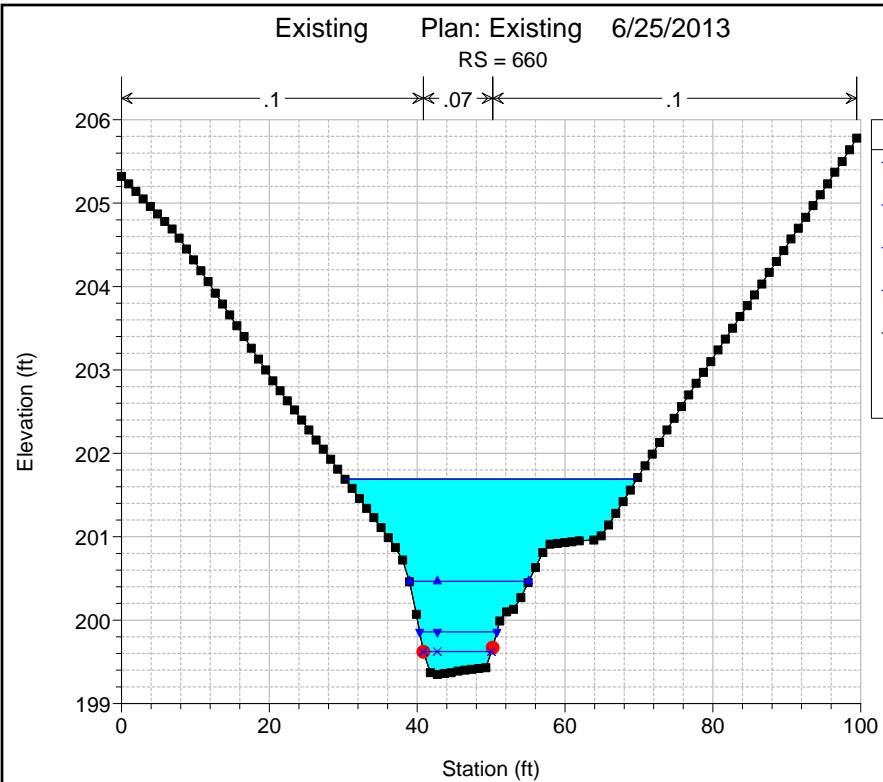


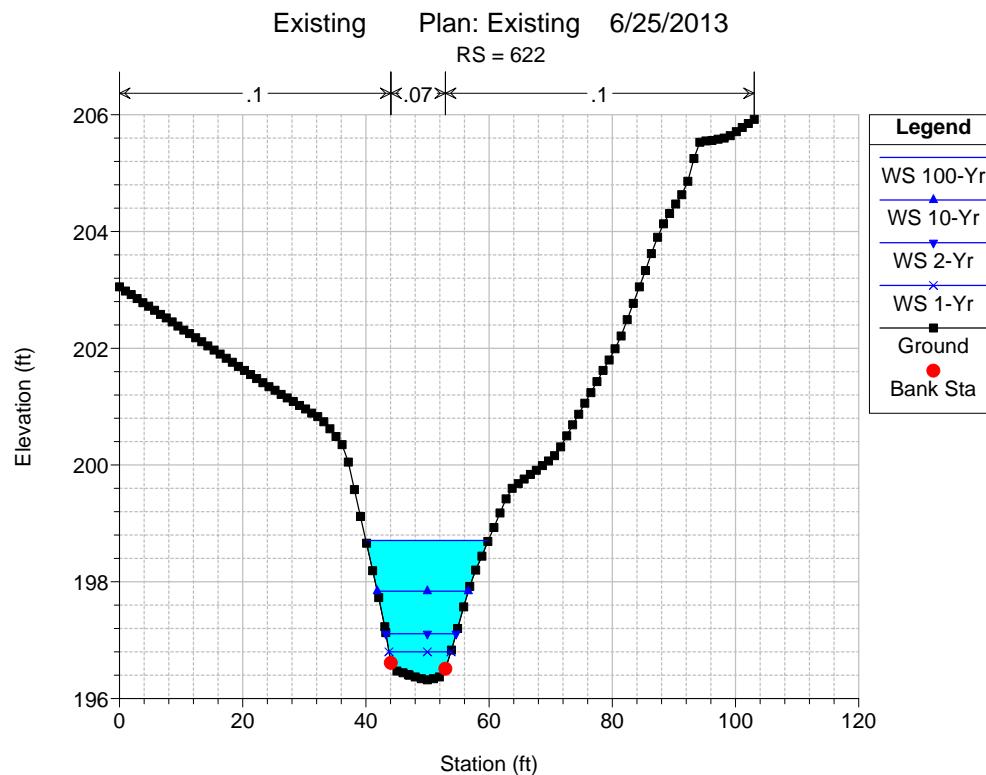
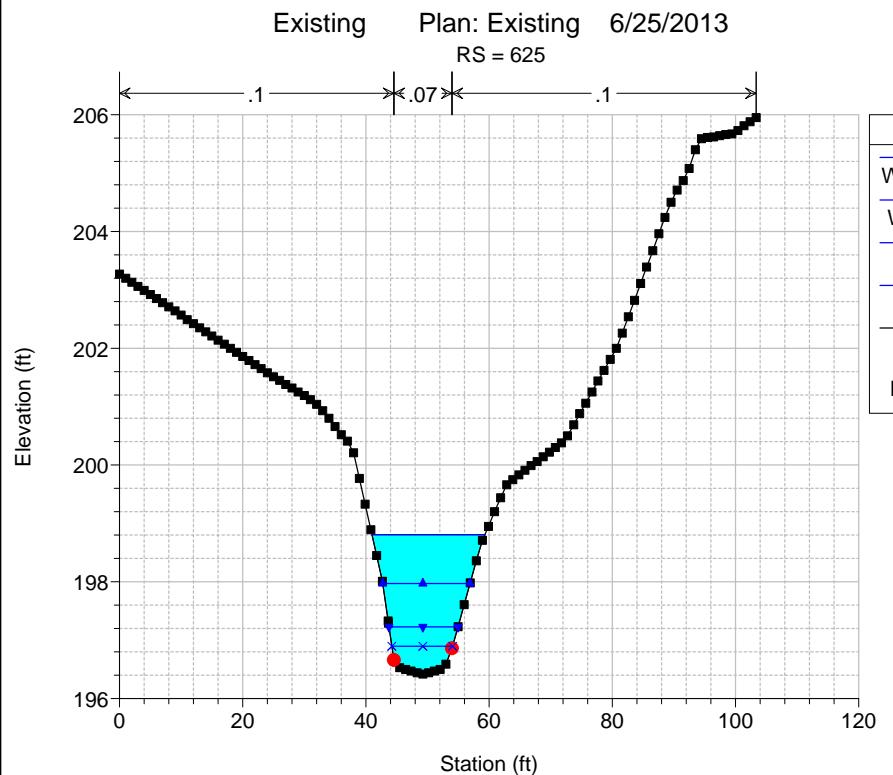
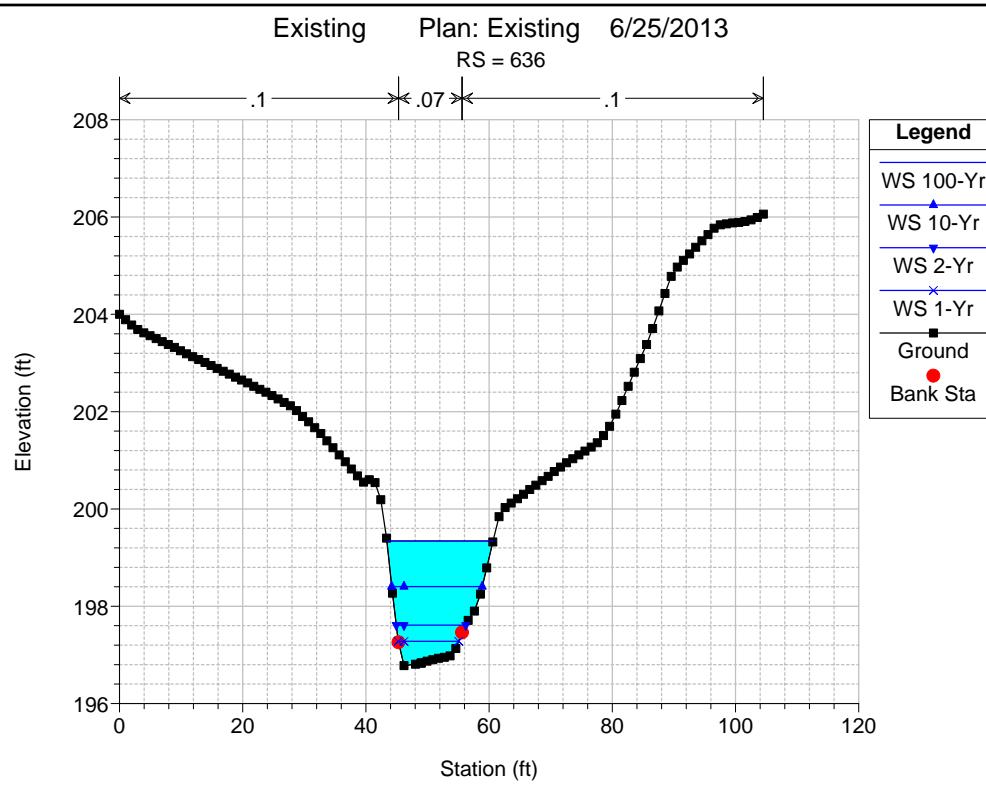
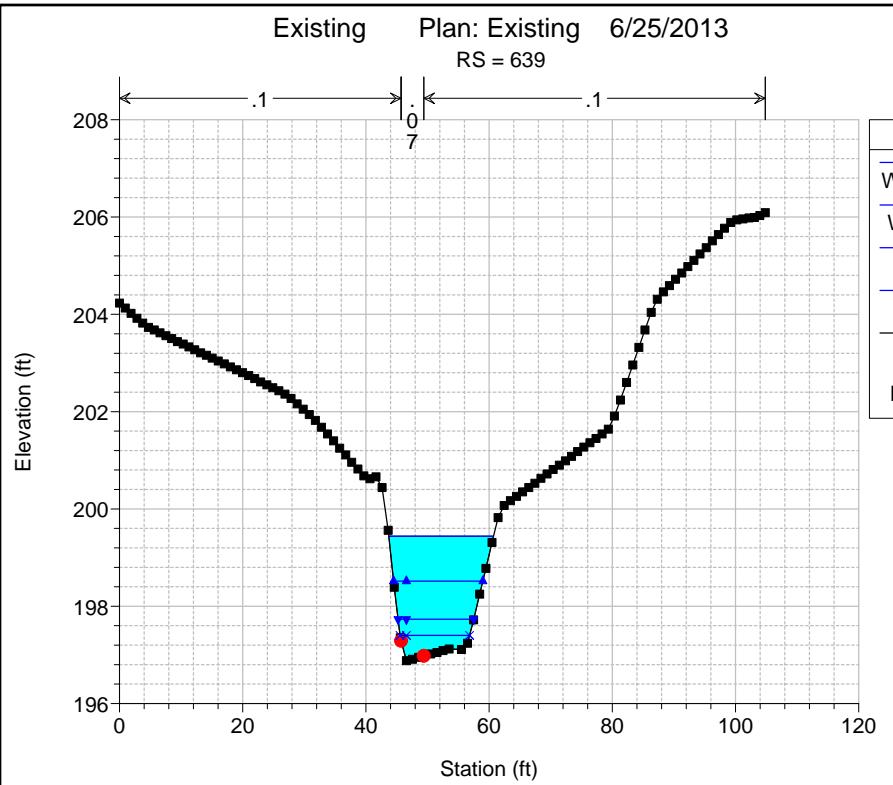


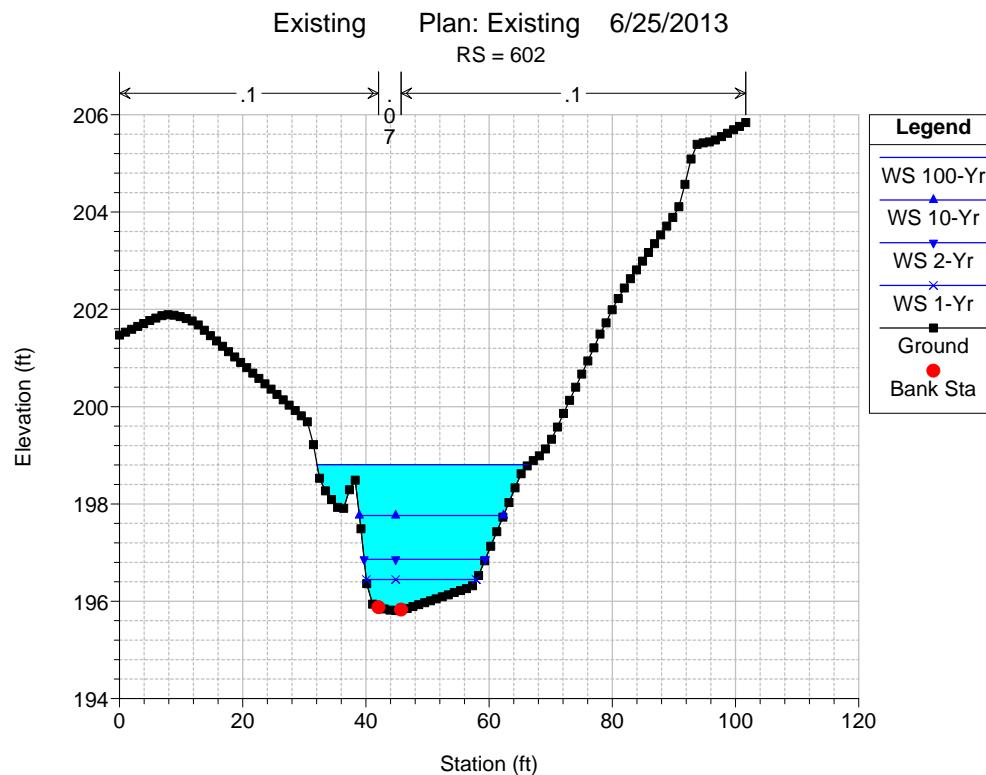
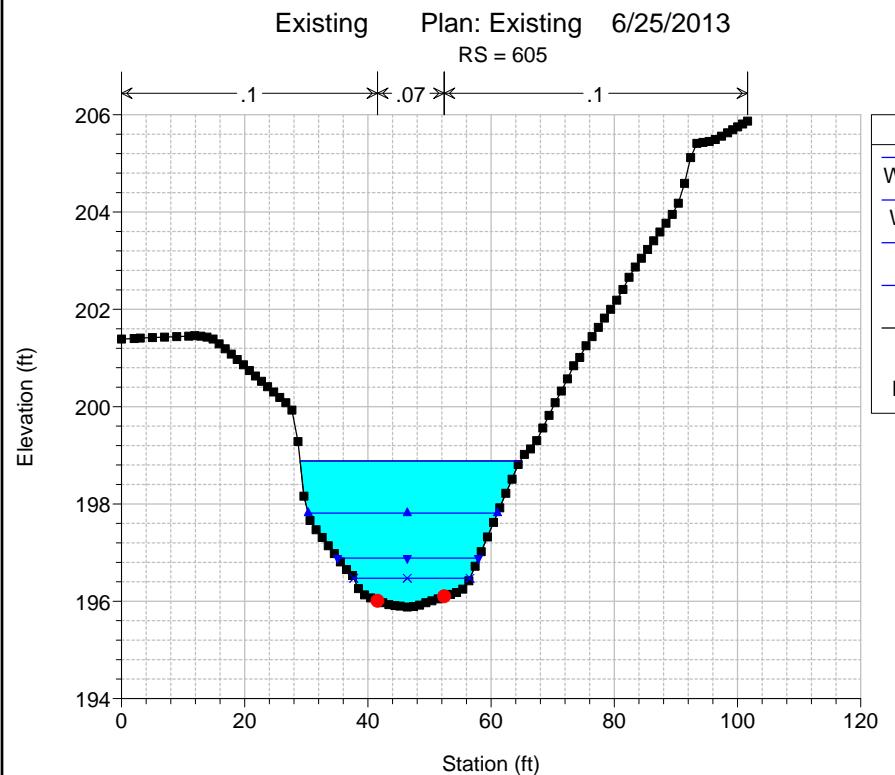
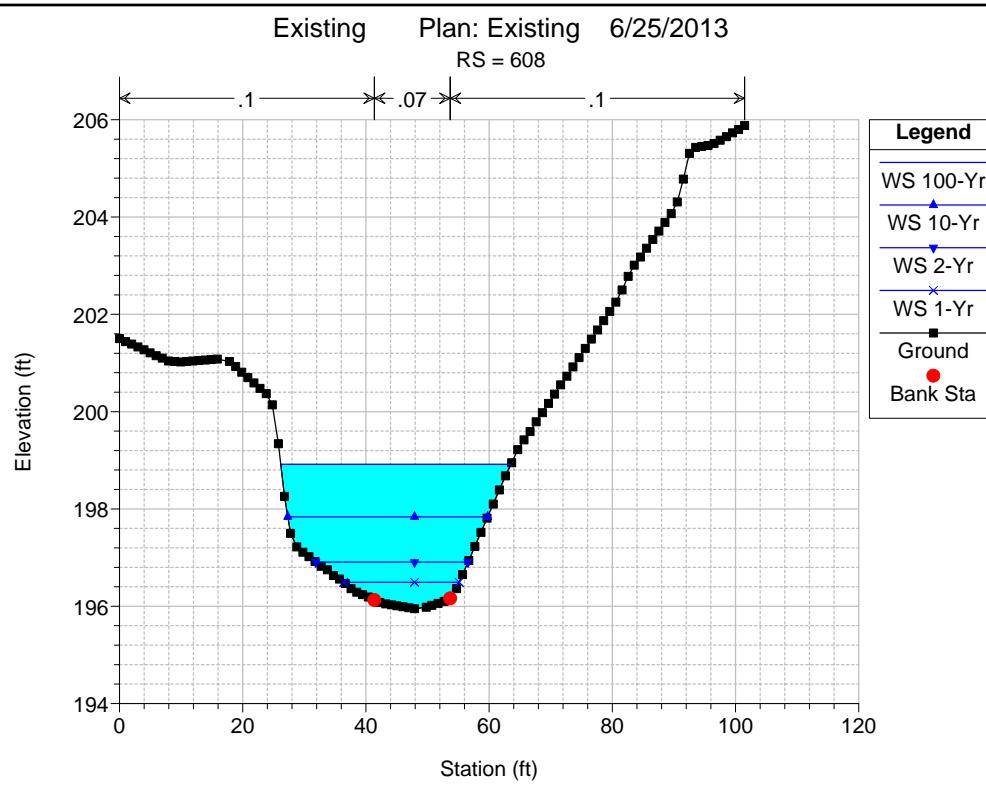
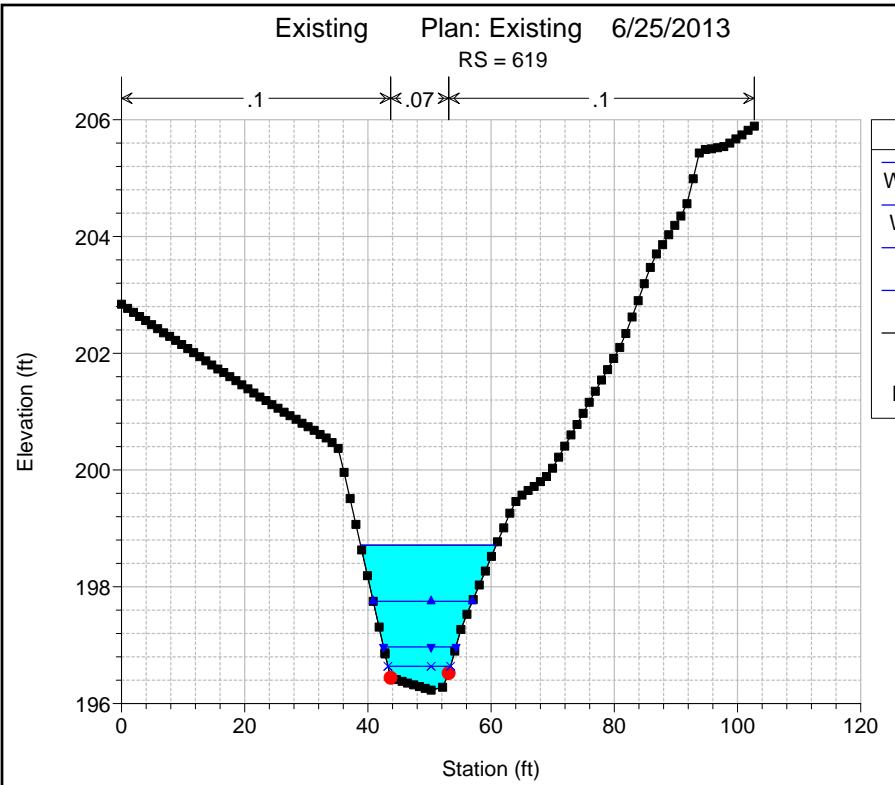


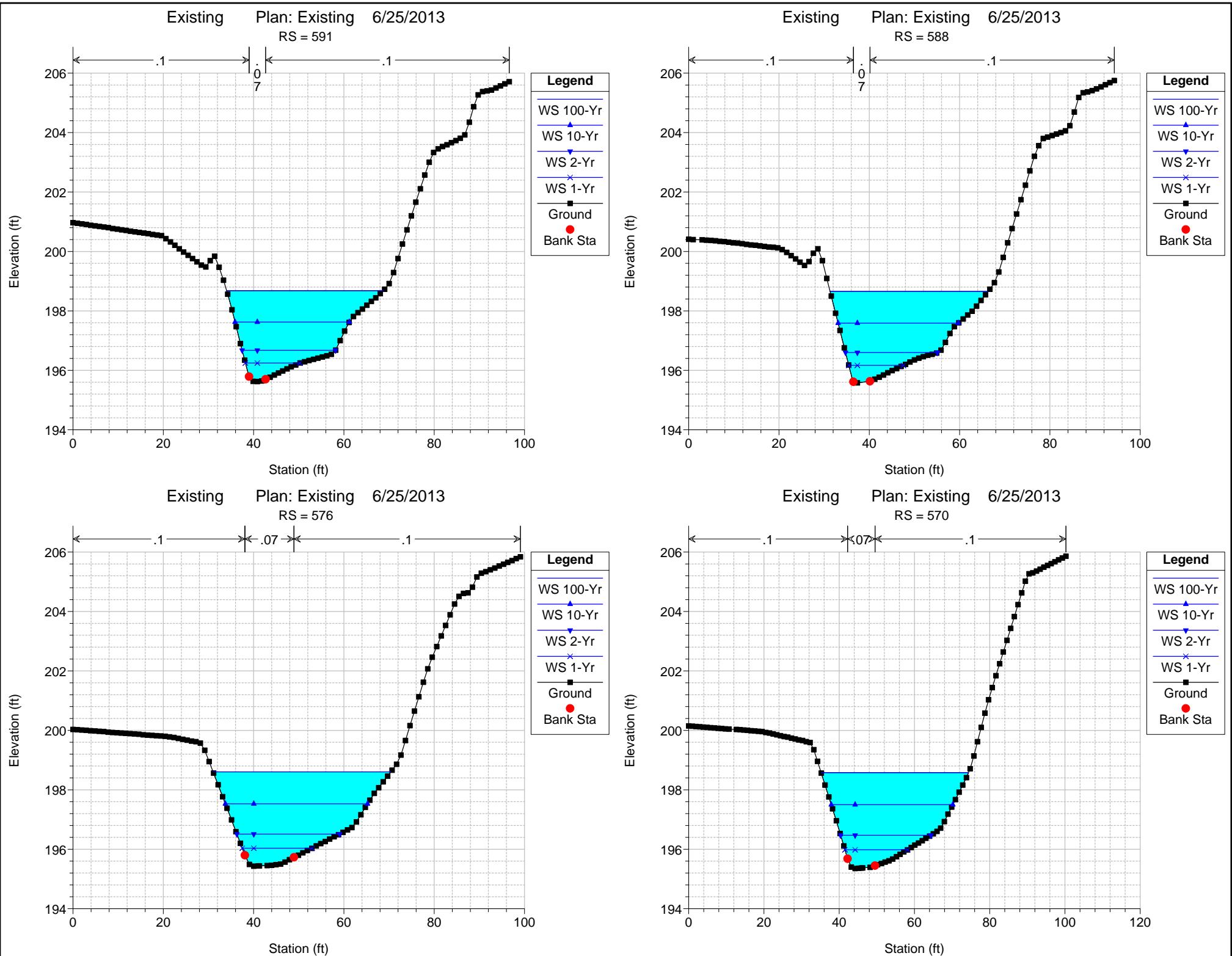


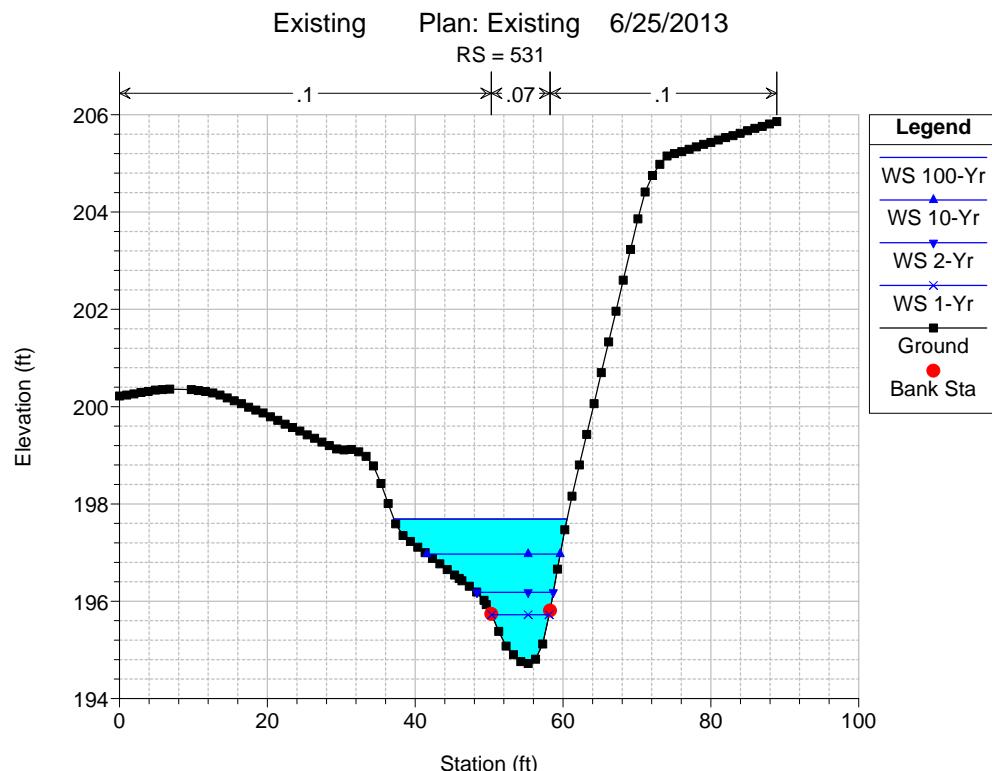
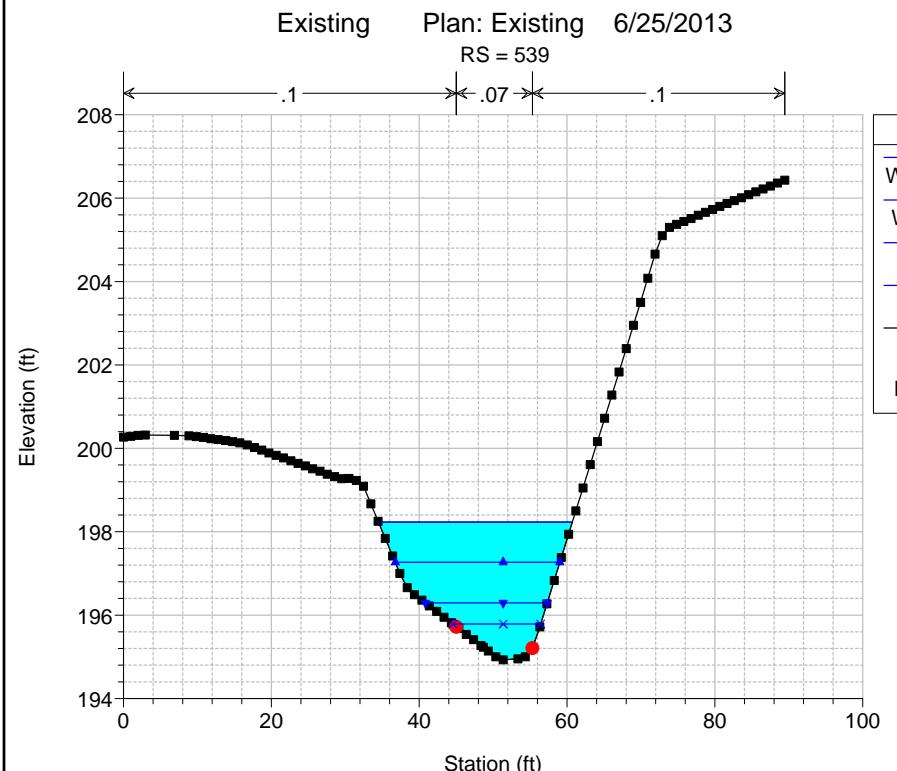
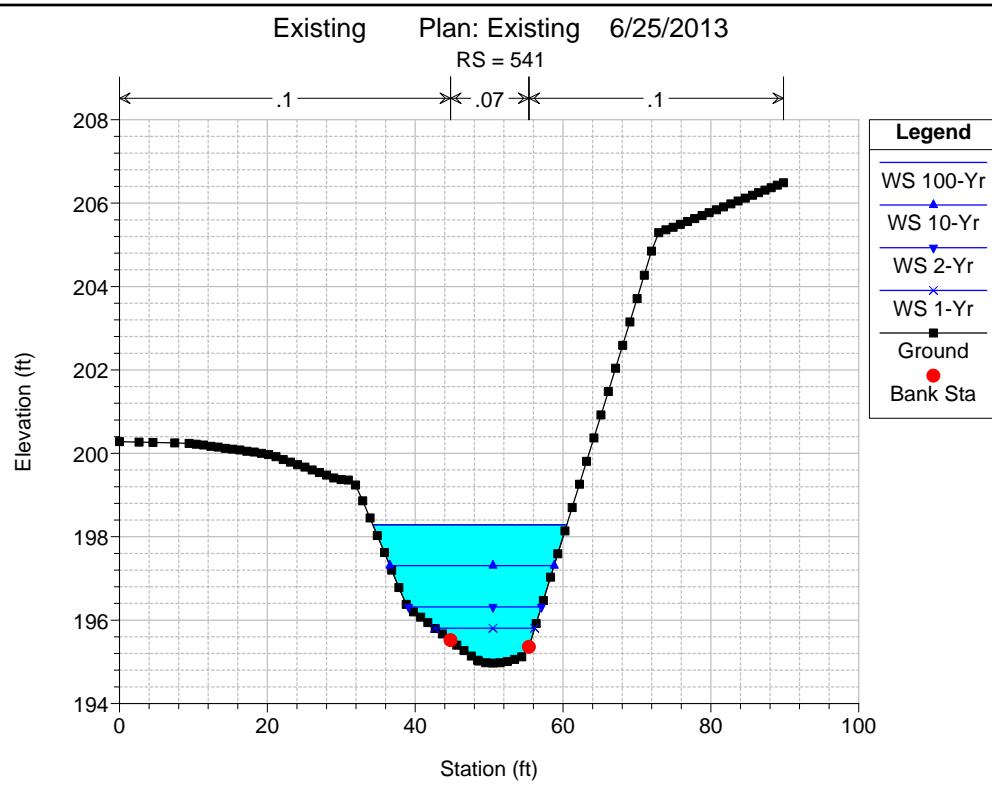
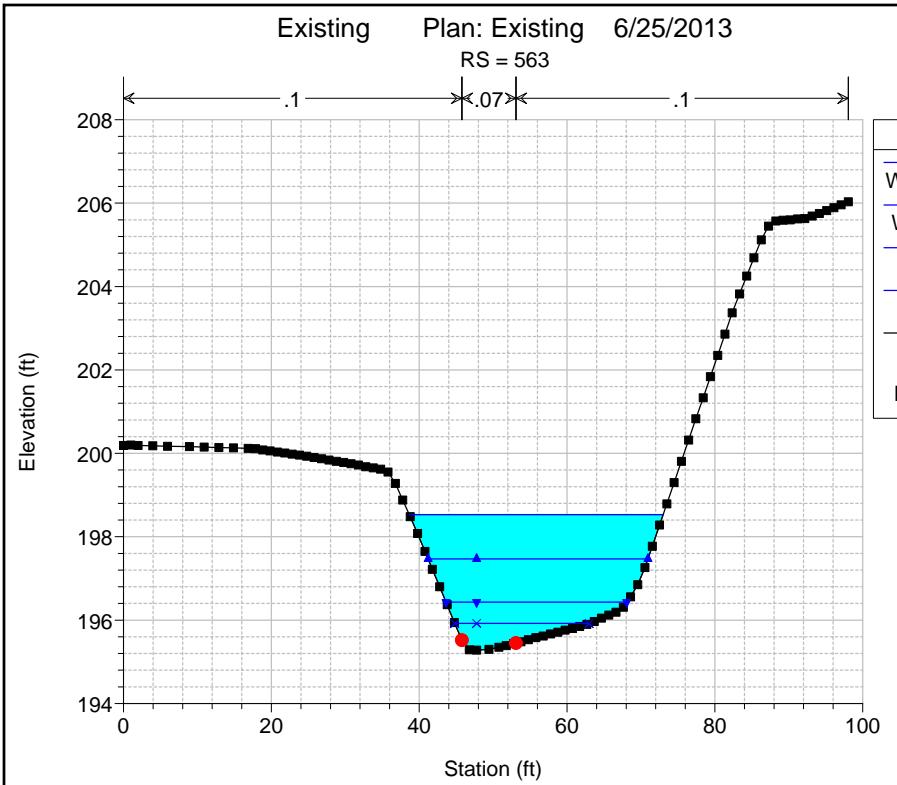


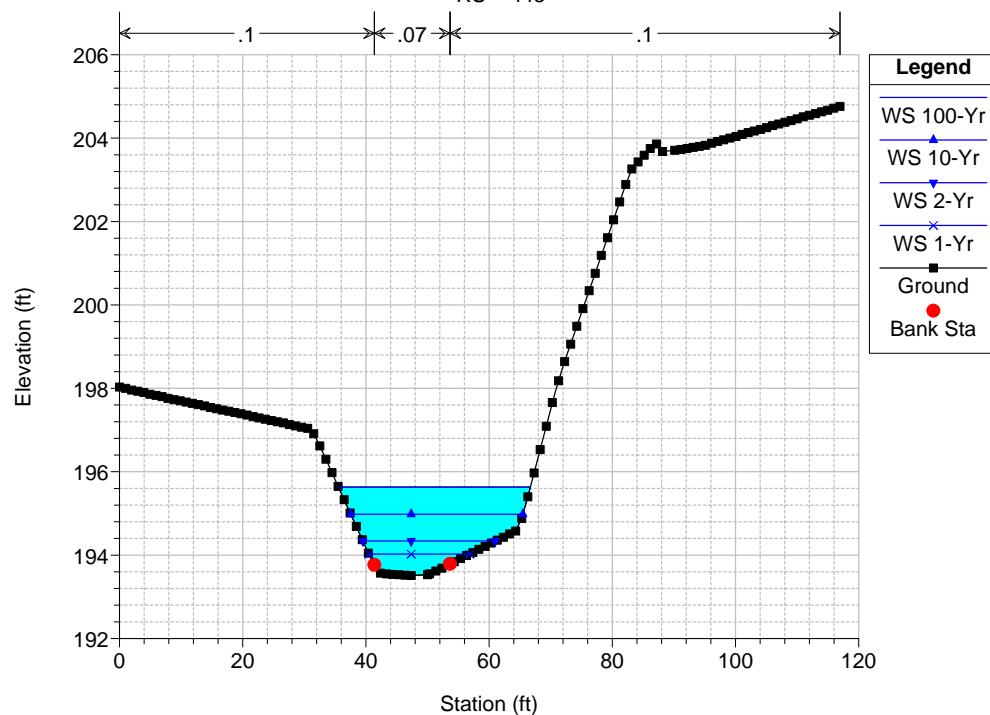
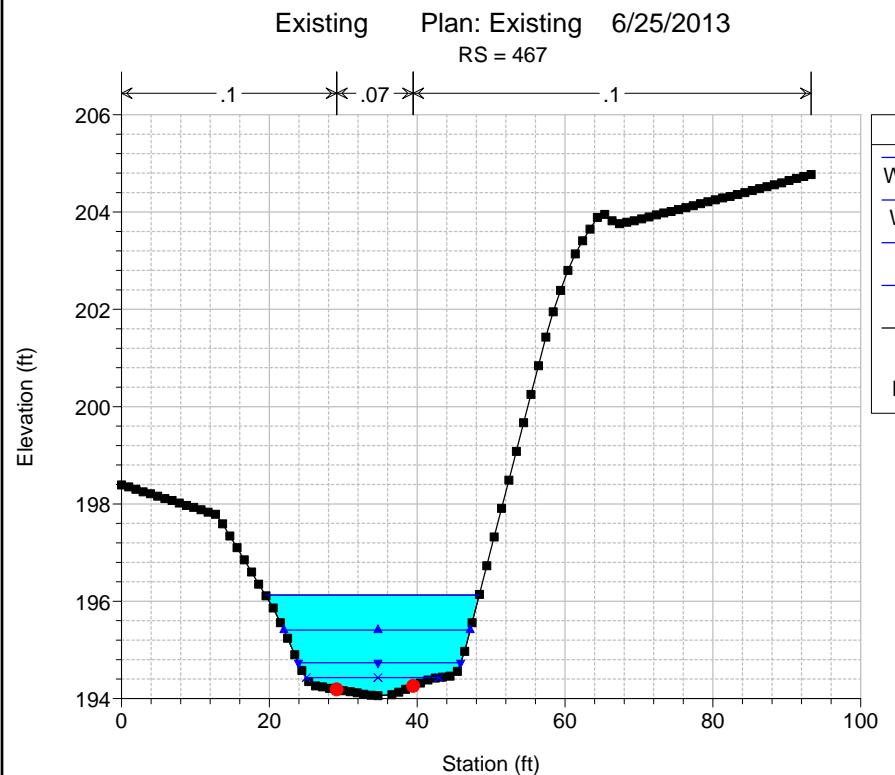
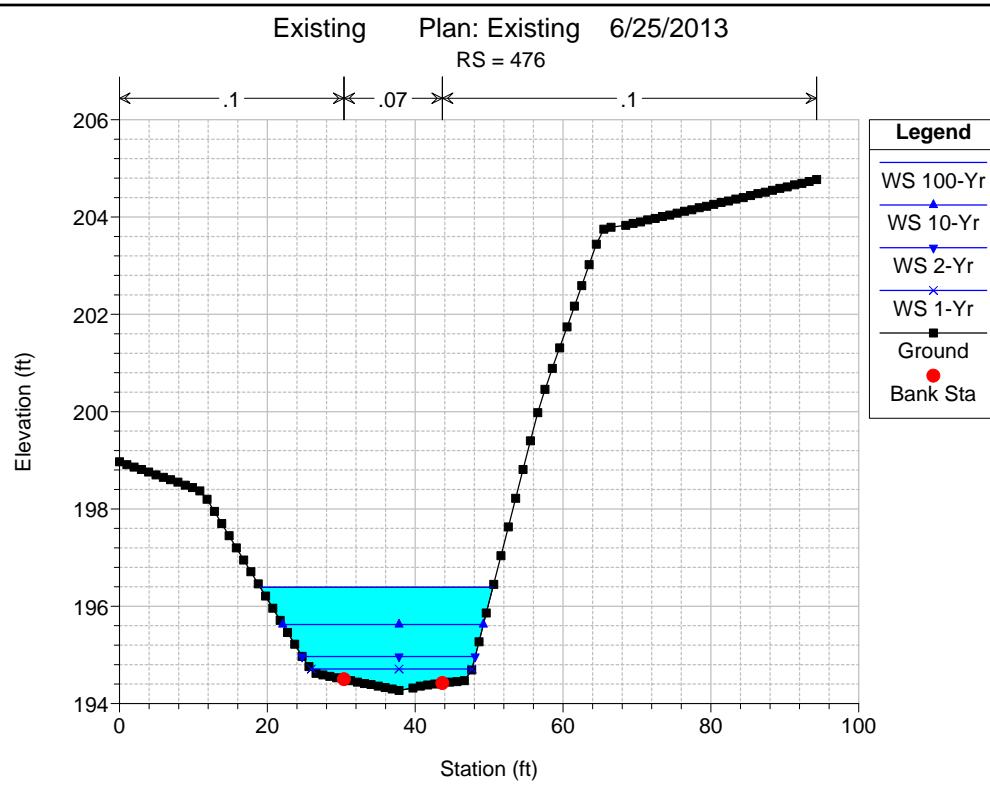
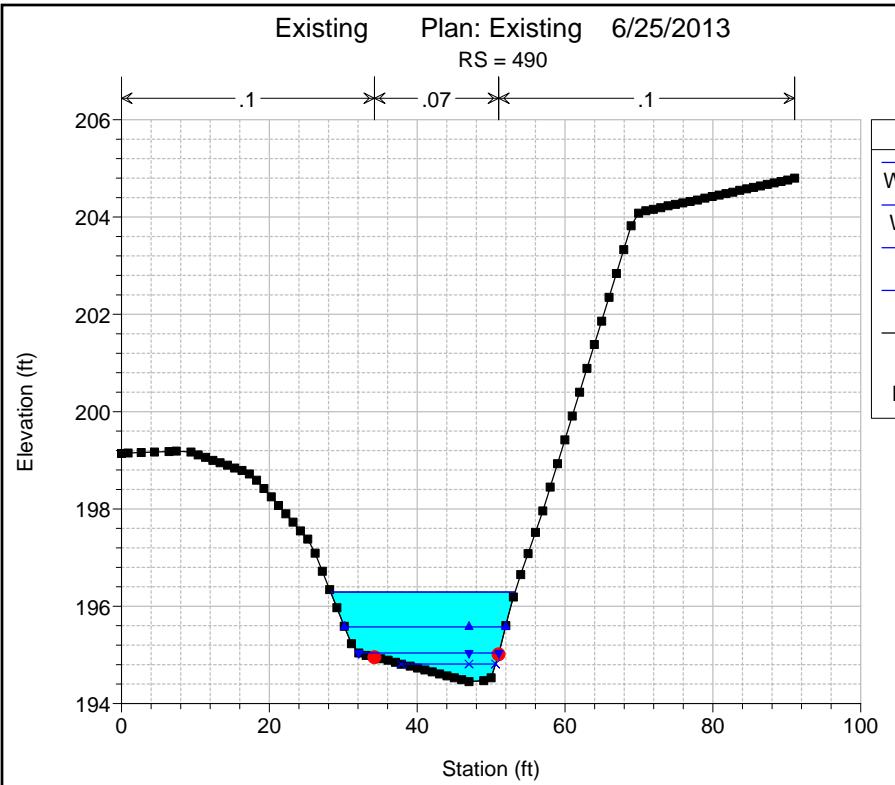


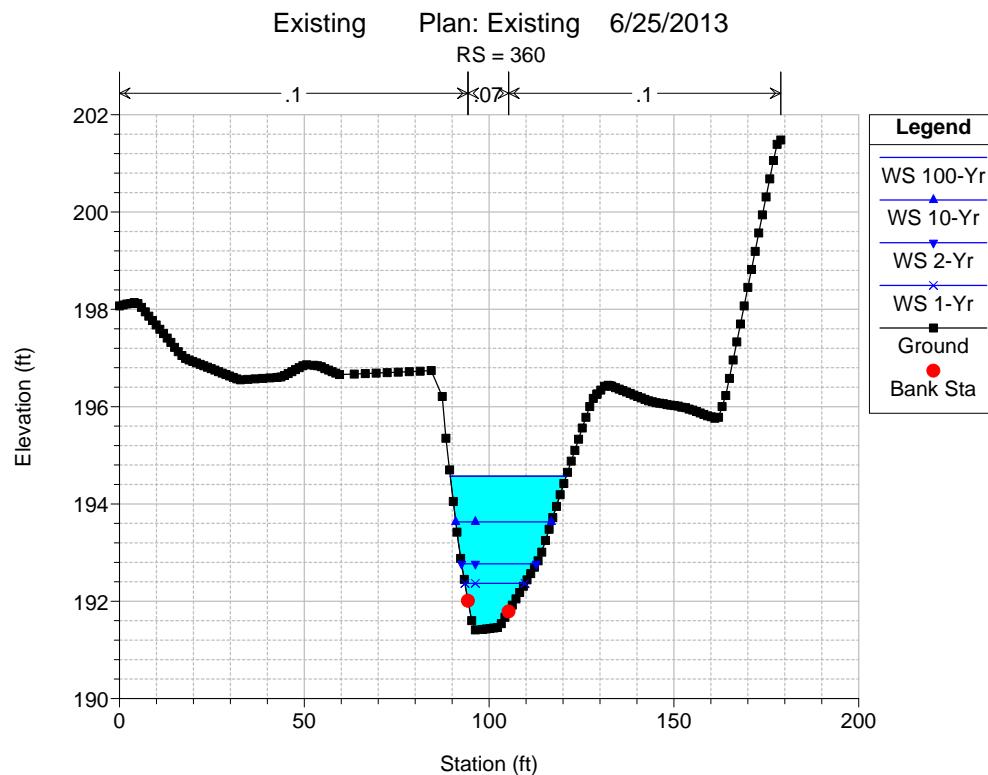
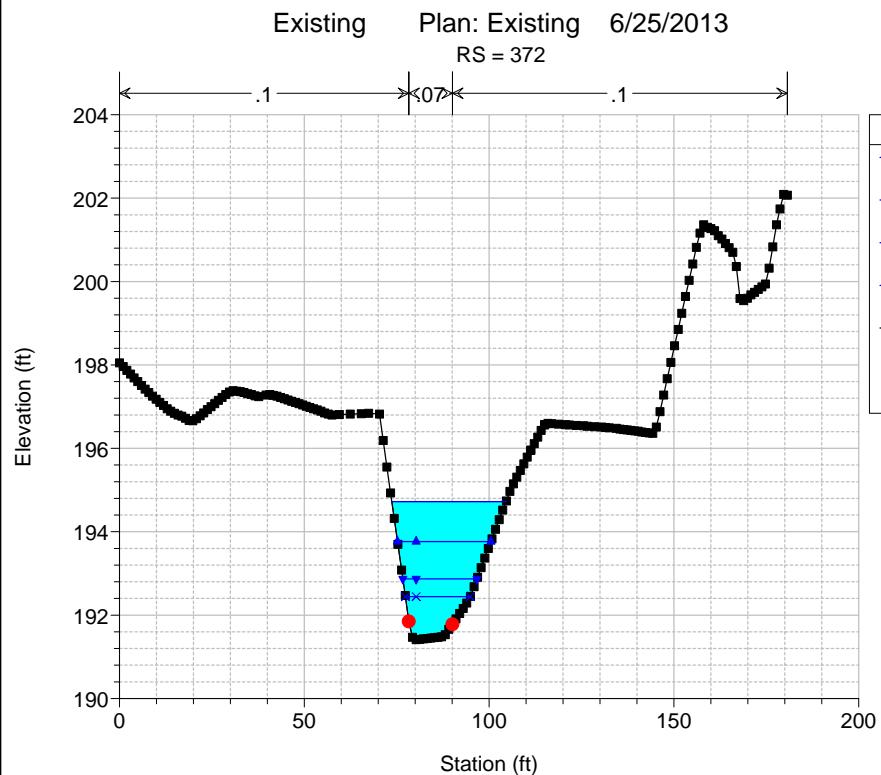
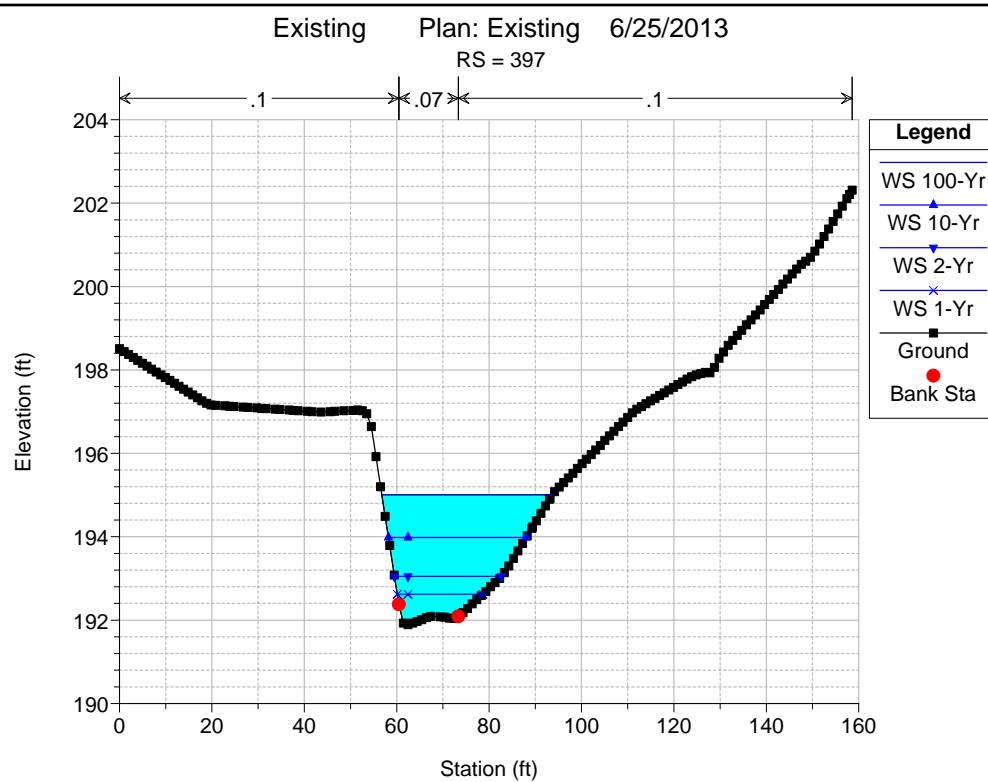
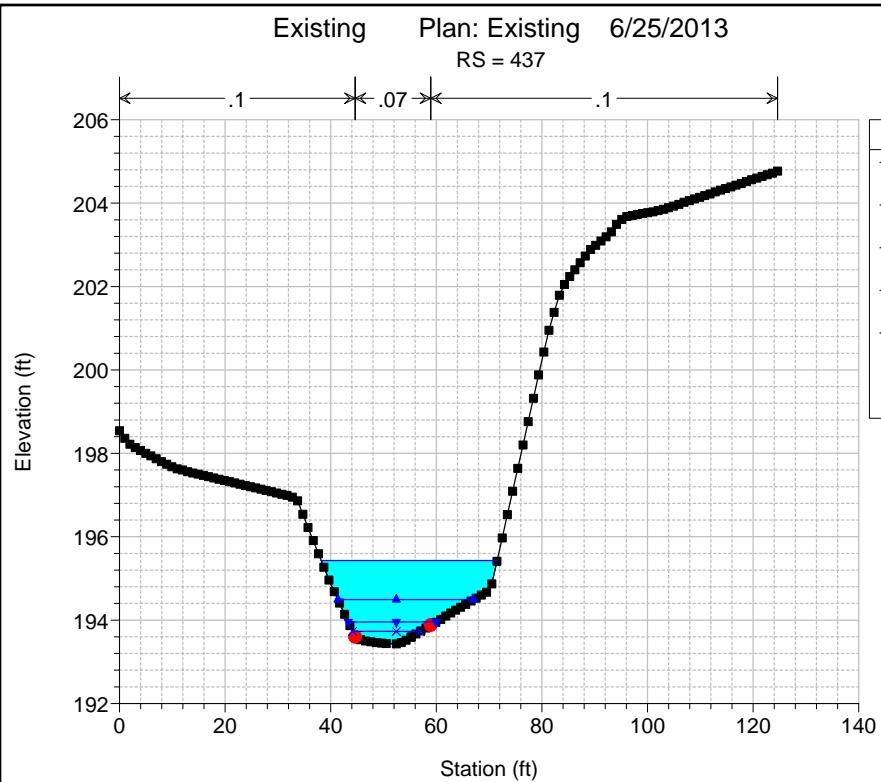


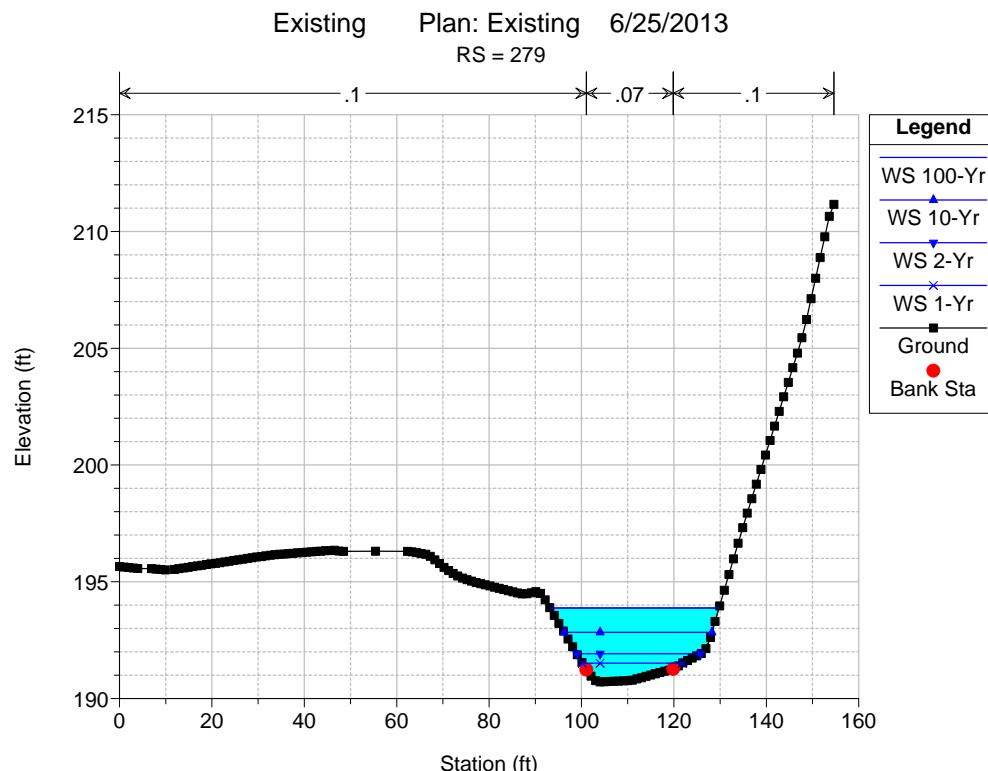
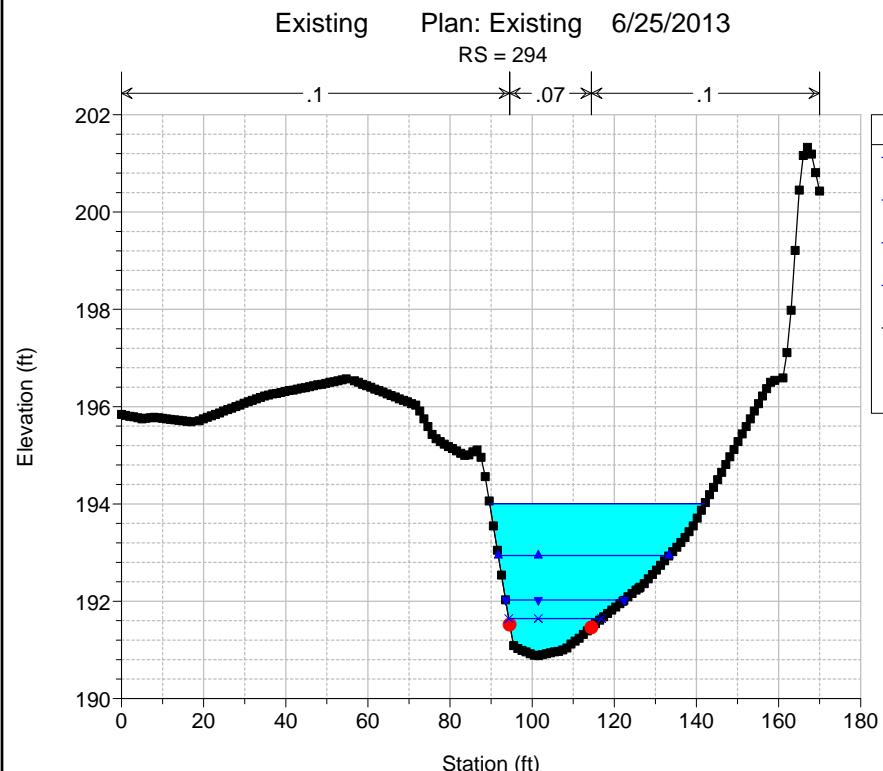
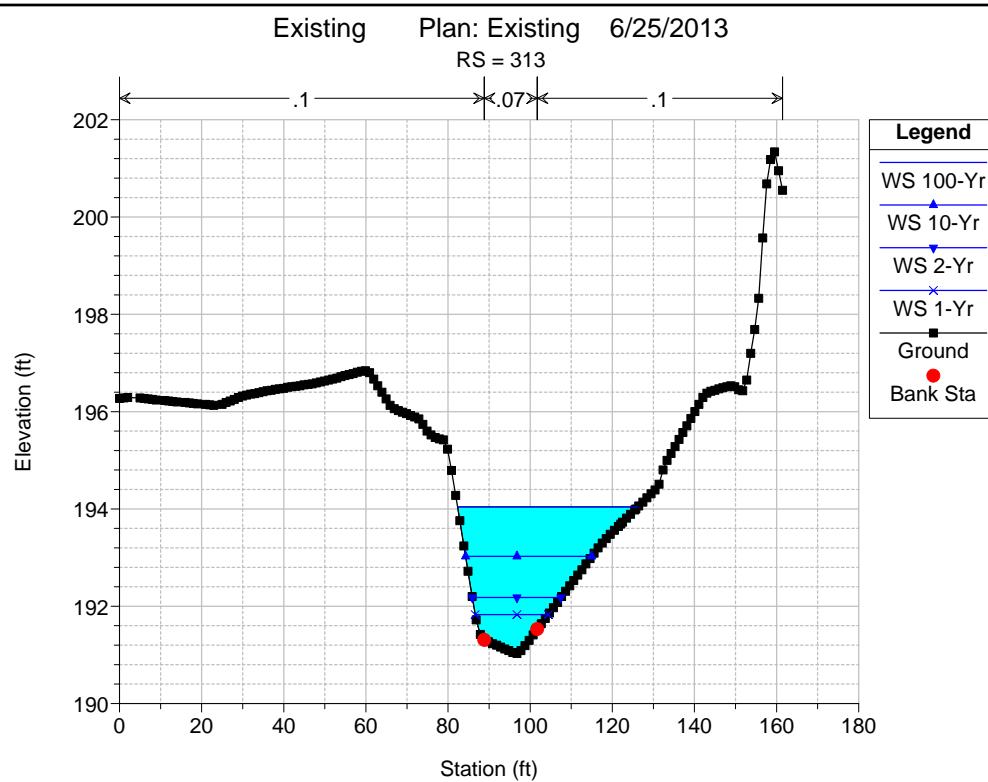
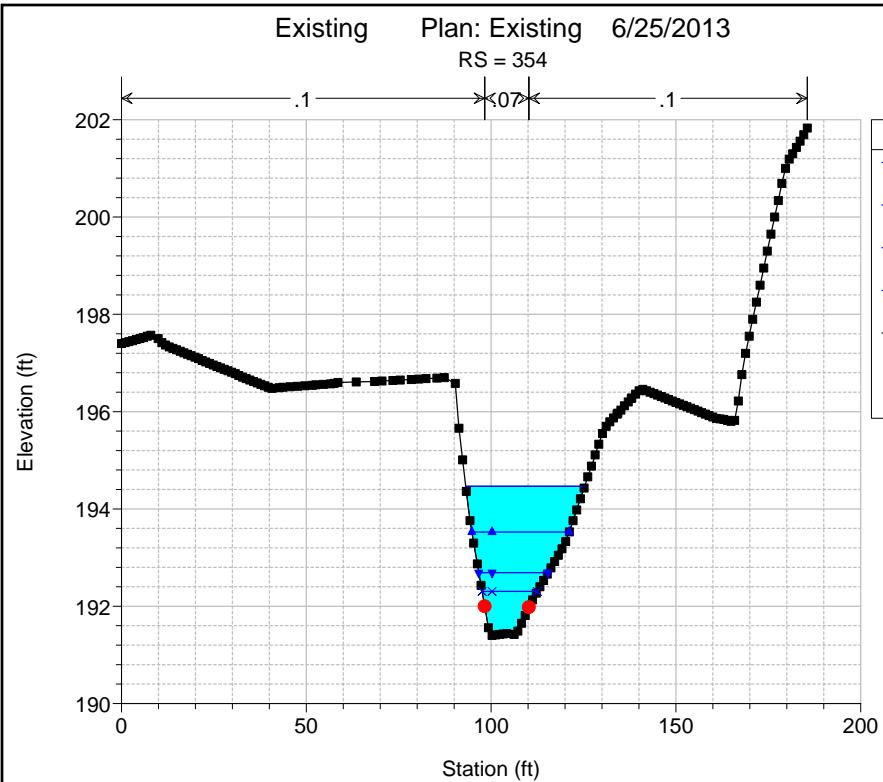


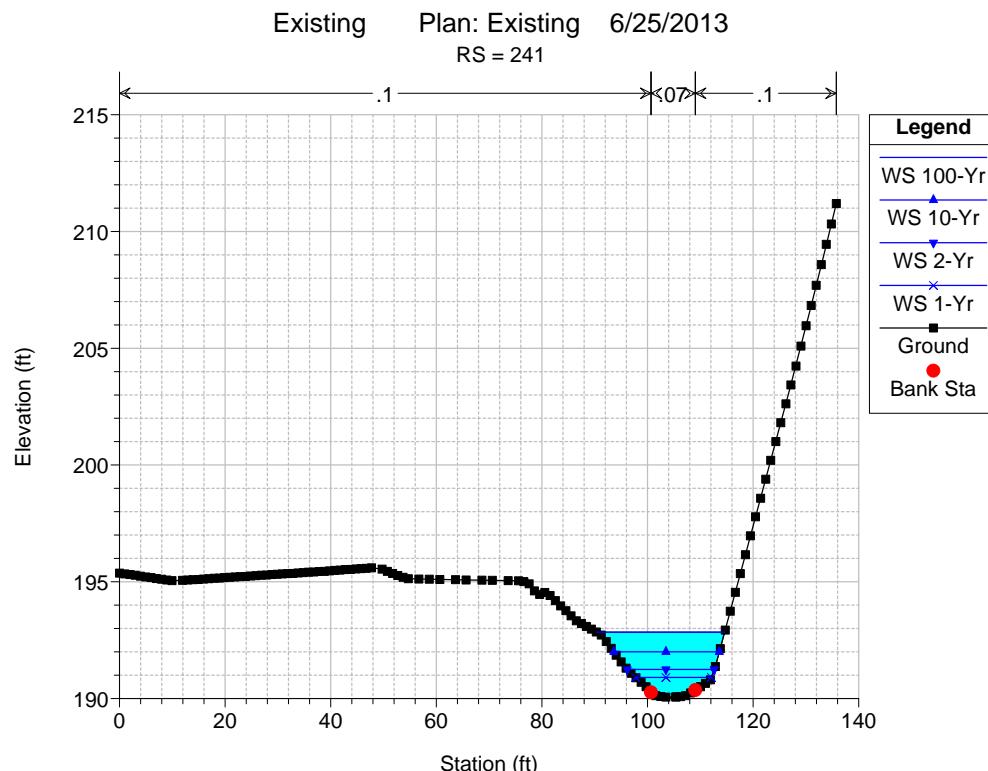
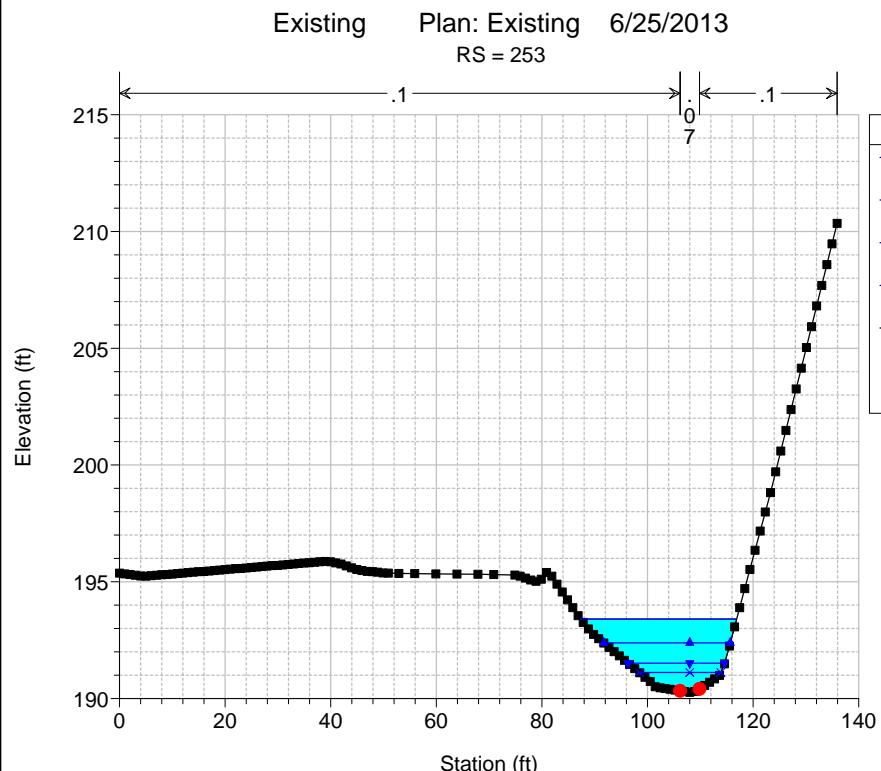
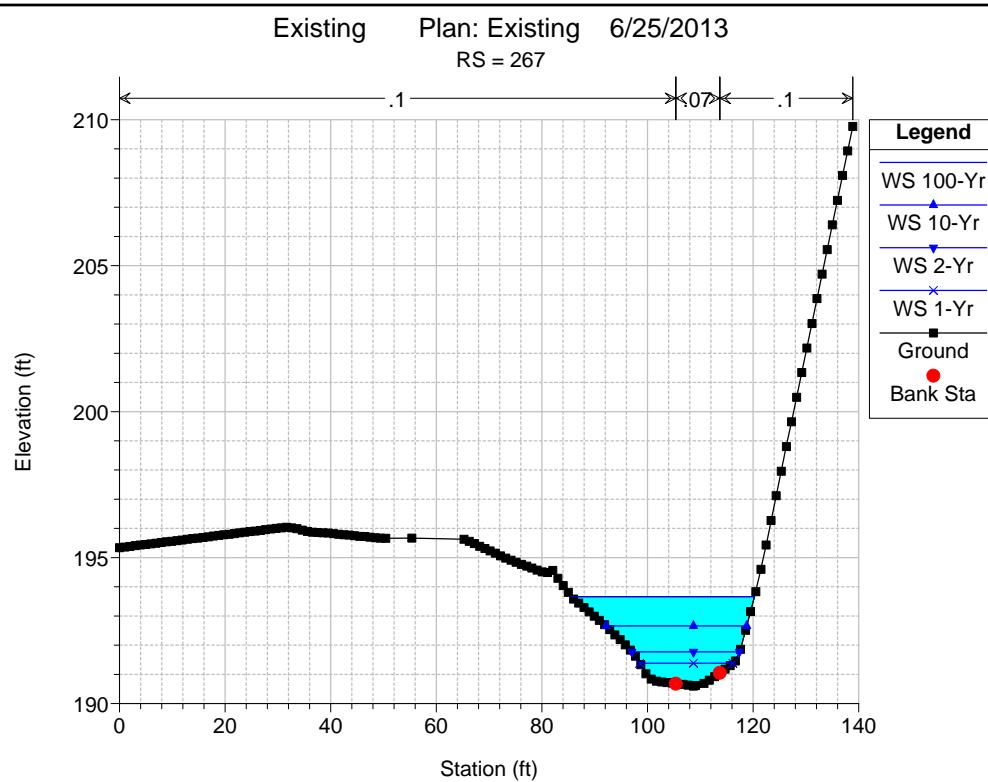
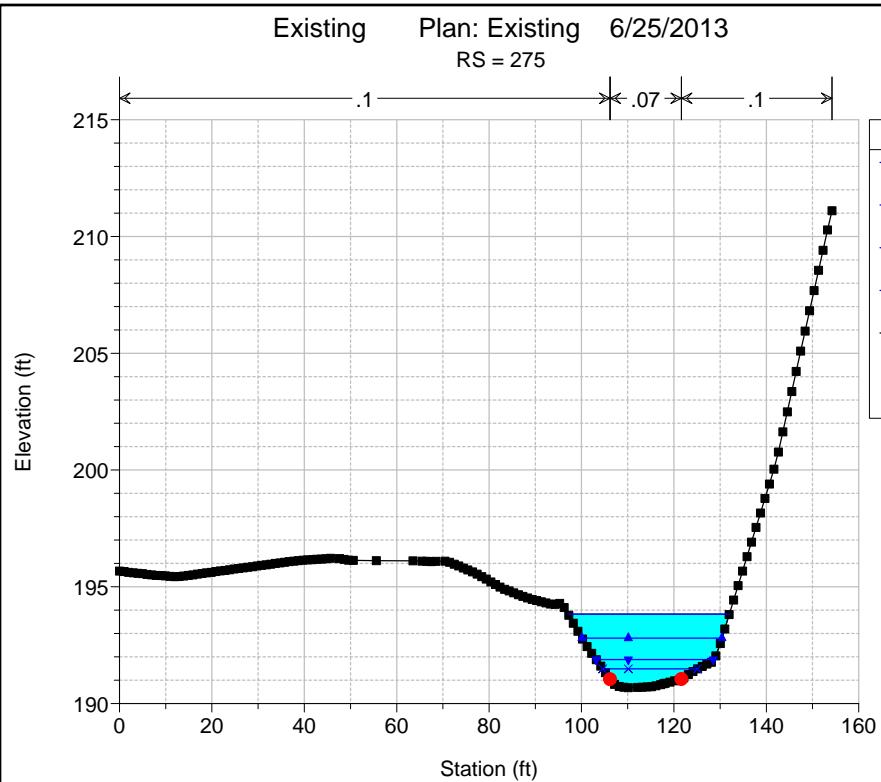


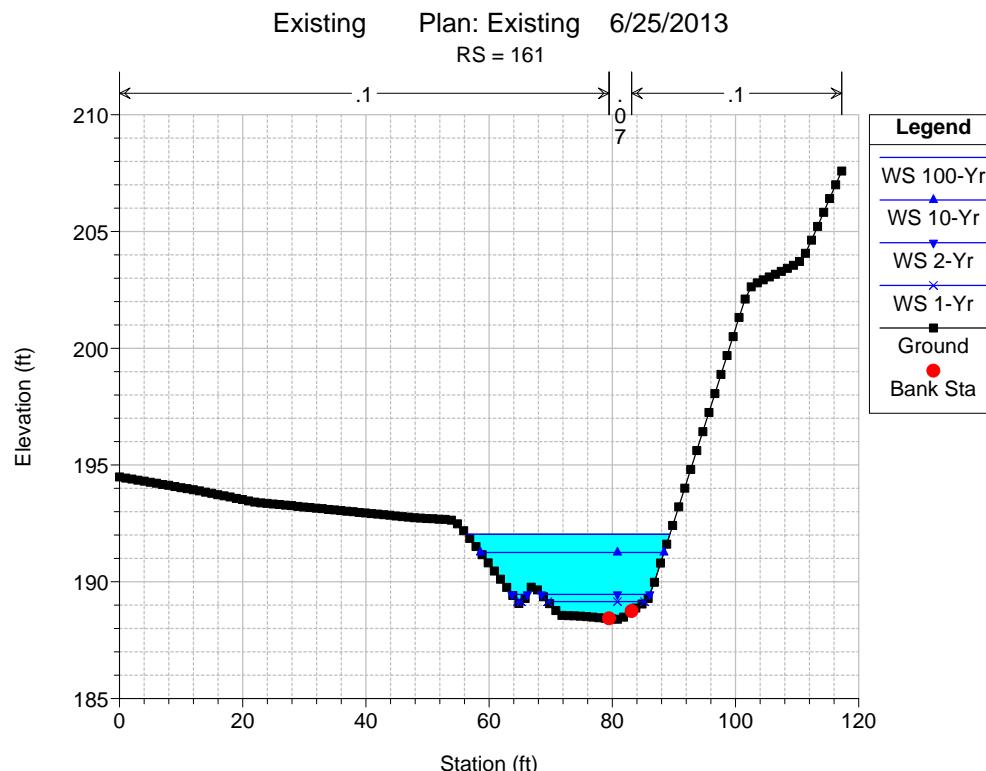
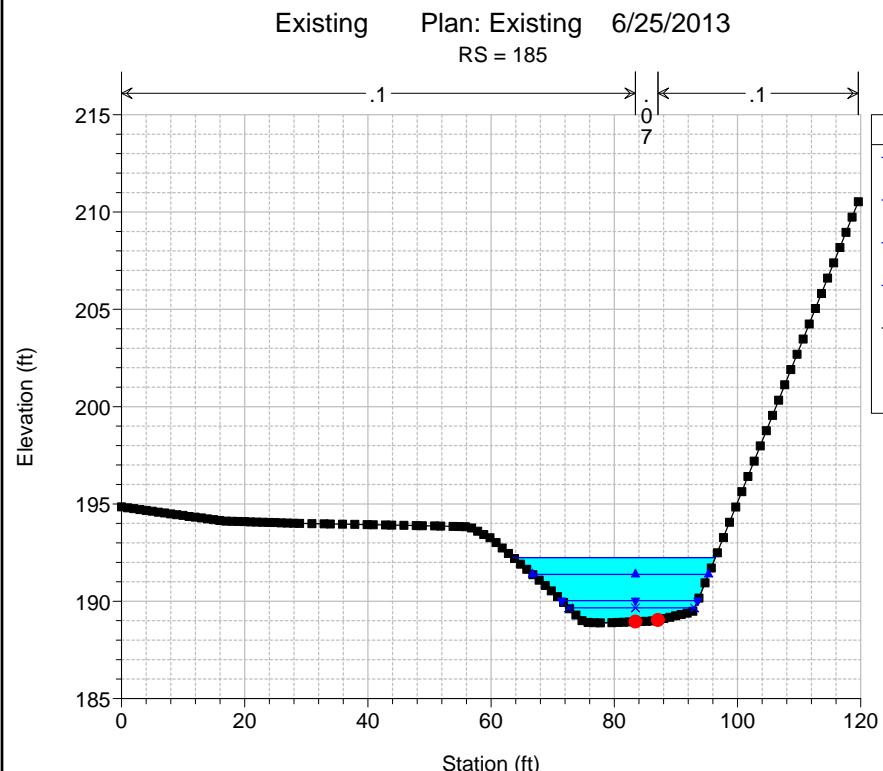
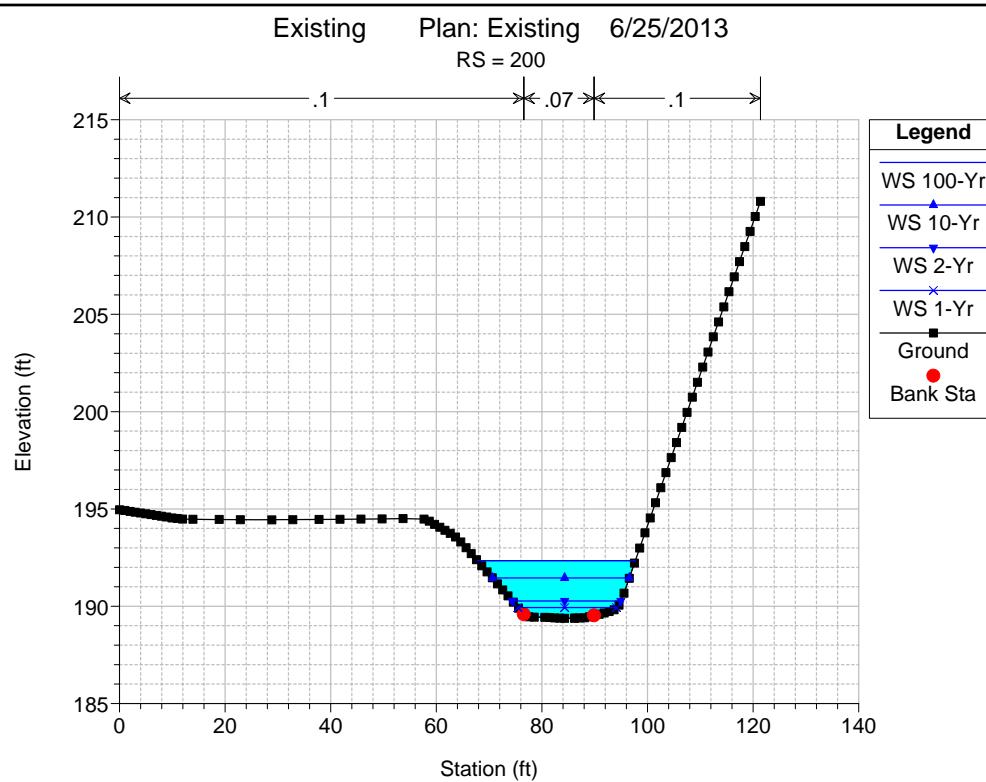
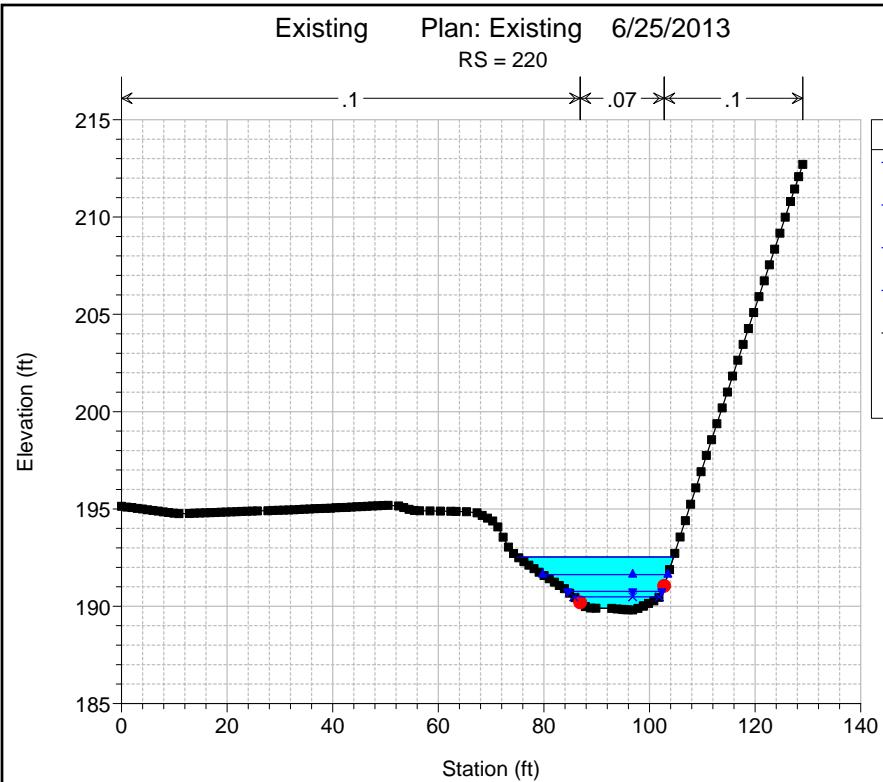


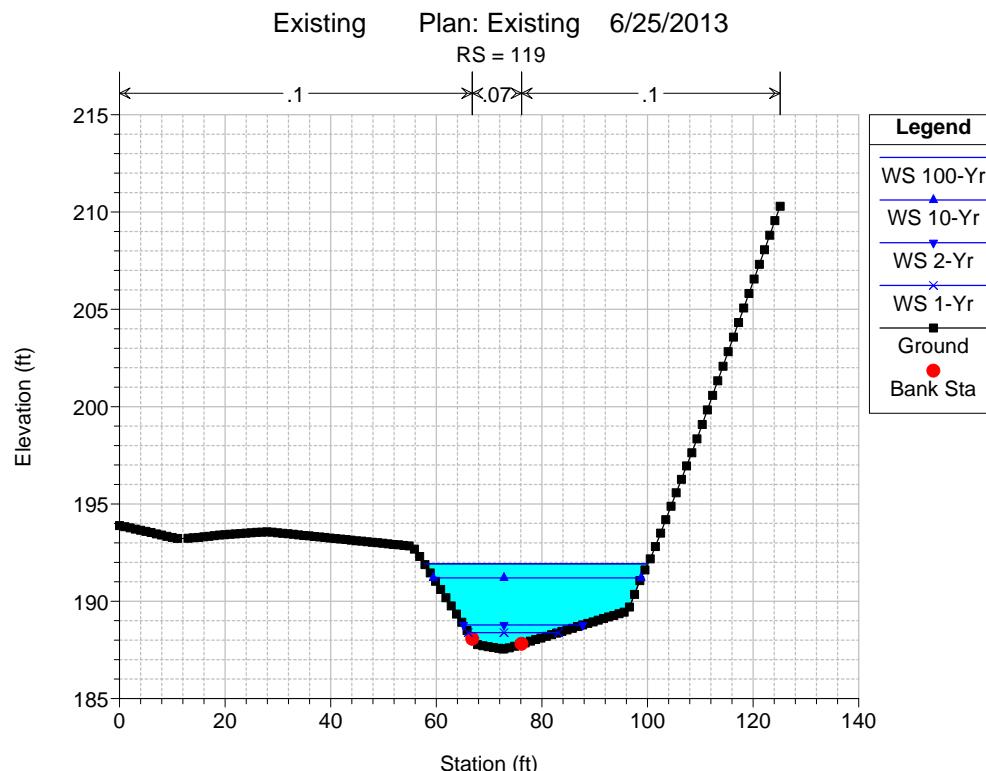
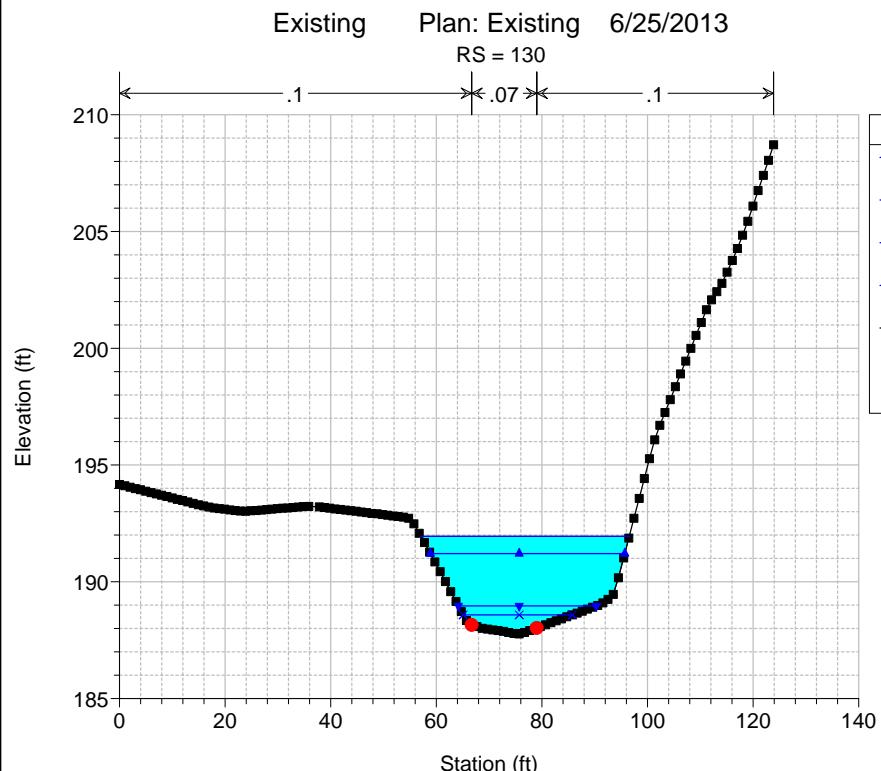
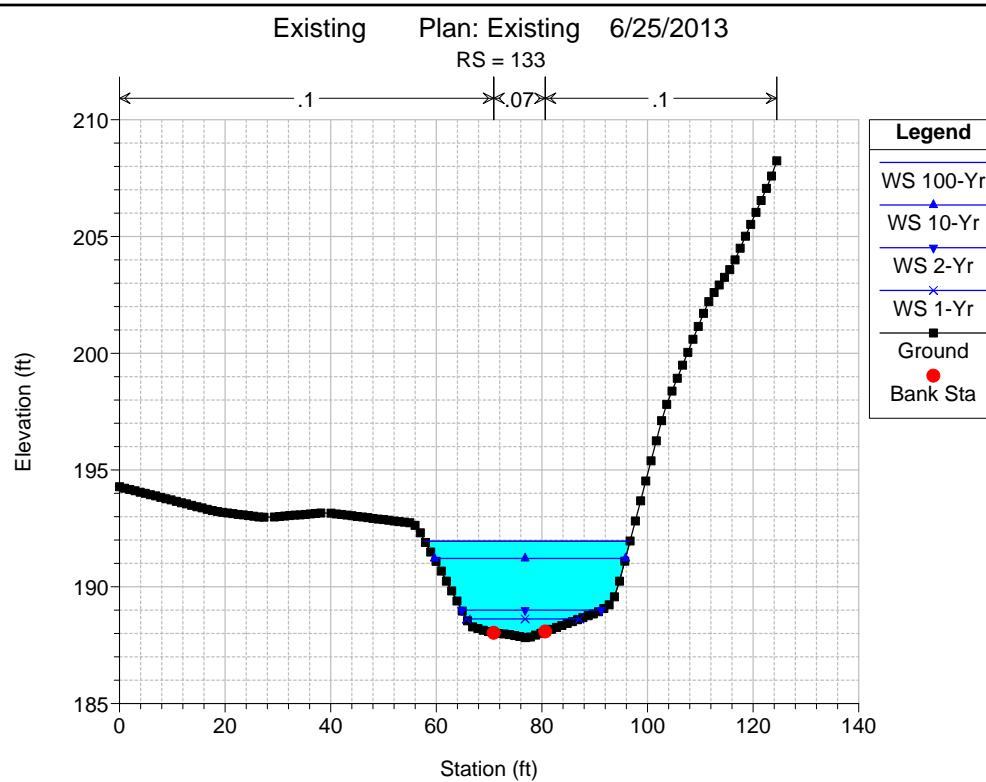
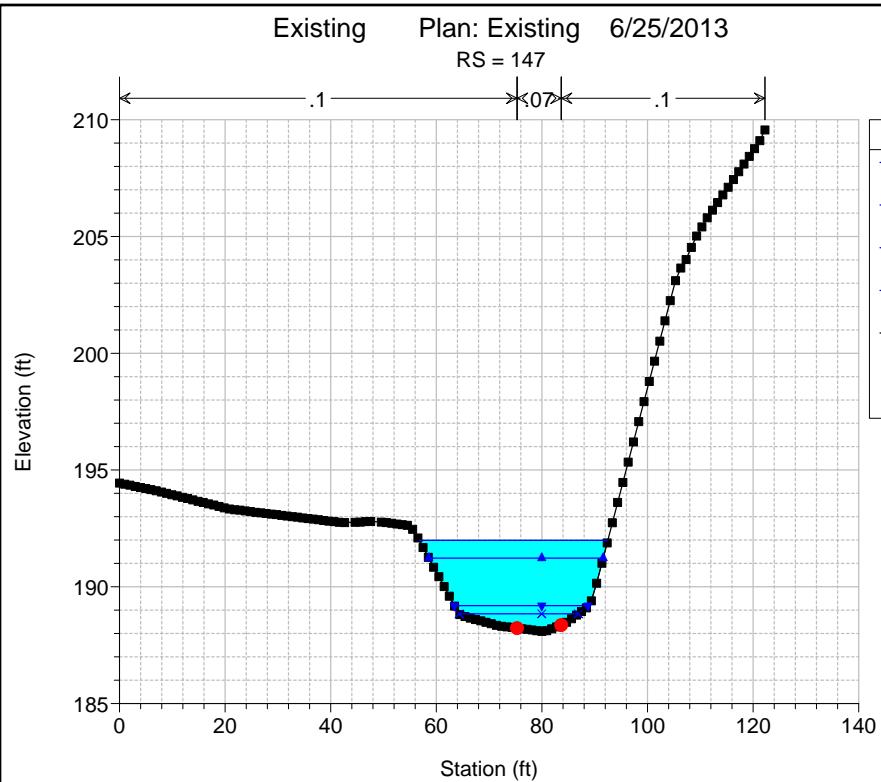






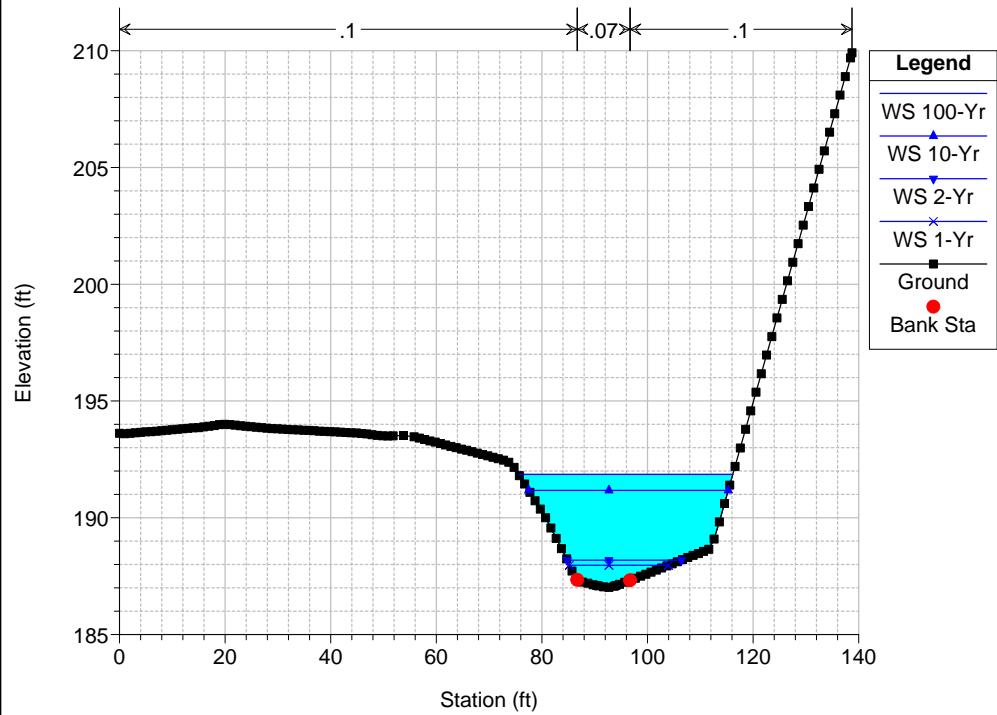






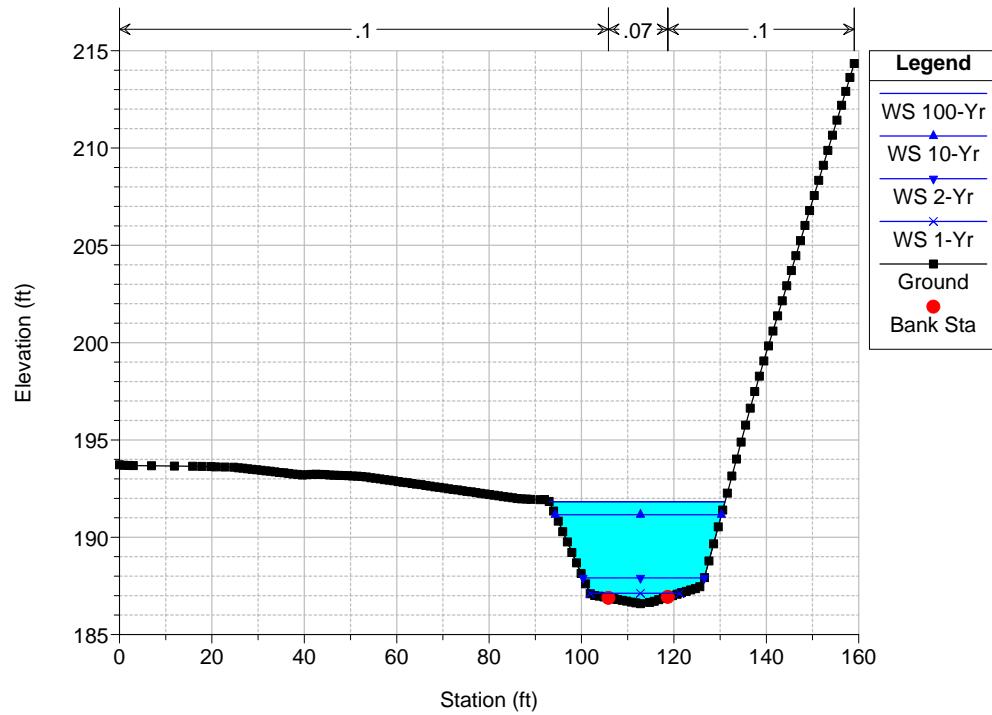
Existing Plan: Existing 6/25/2013

RS = 85



Existing Plan: Existing 6/25/2013

RS = 52



HEC-RAS Plan: Exist River: Unnamed_Trib Reach: 1

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|-------|-----------|---------|---------|-----------|-----------|-----------|-----------|------------|----------|-----------|-----------|--------------|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 1088 | 100-Yr | 5.30 | 214.61 | 214.97 | 214.89 | 215.00 | 0.028686 | 1.52 | 4.66 | 27.54 | 0.51 |
| 1 | 1088 | 10-Yr | 3.20 | 214.61 | 214.91 | 214.85 | 214.93 | 0.028530 | 1.28 | 3.12 | 22.54 | 0.49 |
| 1 | 1088 | 2-Yr | 1.80 | 214.61 | 214.85 | 214.79 | 214.87 | 0.028192 | 1.04 | 1.99 | 17.72 | 0.46 |
| 1 | 1088 | 1-Yr | 1.20 | 214.61 | 214.82 | 214.76 | 214.83 | 0.026816 | 0.89 | 1.50 | 15.20 | 0.44 |
| | | | | | | | | | | | | |
| 1 | 952 | 100-Yr | 5.30 | 209.73 | 210.05 | | 210.10 | 0.046045 | 1.89 | 3.52 | 20.33 | 0.64 |
| 1 | 952 | 10-Yr | 3.20 | 209.73 | 209.99 | | 210.03 | 0.046388 | 1.59 | 2.36 | 16.66 | 0.62 |
| 1 | 952 | 2-Yr | 1.80 | 209.73 | 209.93 | | 209.96 | 0.047450 | 1.30 | 1.51 | 13.53 | 0.59 |
| 1 | 952 | 1-Yr | 1.20 | 209.73 | 209.90 | | 209.92 | 0.050773 | 1.14 | 1.10 | 11.63 | 0.59 |
| | | | | | | | | | | | | |
| 1 | 930 | 100-Yr | 5.30 | 208.87 | 209.23 | | 209.26 | 0.031733 | 1.65 | 4.10 | 21.04 | 0.54 |
| 1 | 930 | 10-Yr | 3.20 | 208.87 | 209.16 | | 209.19 | 0.031384 | 1.39 | 2.81 | 18.28 | 0.52 |
| 1 | 930 | 2-Yr | 1.80 | 208.87 | 209.10 | | 209.12 | 0.030651 | 1.12 | 1.83 | 15.00 | 0.49 |
| 1 | 930 | 1-Yr | 1.20 | 208.87 | 209.07 | | 209.08 | 0.029394 | 0.96 | 1.38 | 12.81 | 0.46 |
| | | | | | | | | | | | | |
| 1 | 928 | 100-Yr | 5.30 | 208.77 | 209.14 | | 209.17 | 0.029385 | 1.58 | 4.17 | 21.30 | 0.52 |
| 1 | 928 | 10-Yr | 3.20 | 208.77 | 209.08 | | 209.10 | 0.027211 | 1.29 | 2.94 | 18.98 | 0.48 |
| 1 | 928 | 2-Yr | 1.80 | 208.77 | 209.02 | | 209.03 | 0.025155 | 1.02 | 1.96 | 15.36 | 0.44 |
| 1 | 928 | 1-Yr | 1.20 | 208.77 | 208.99 | | 209.00 | 0.024890 | 0.88 | 1.46 | 13.59 | 0.42 |
| | | | | | | | | | | | | |
| 1 | 924 | 100-Yr | 5.30 | 208.67 | 209.02 | | 209.06 | 0.036174 | 1.53 | 3.60 | 17.96 | 0.56 |
| 1 | 924 | 10-Yr | 3.20 | 208.67 | 208.95 | | 208.98 | 0.043067 | 1.32 | 2.44 | 16.09 | 0.57 |
| 1 | 924 | 2-Yr | 1.80 | 208.67 | 208.89 | | 208.91 | 0.050553 | 1.15 | 1.56 | 13.21 | 0.59 |
| 1 | 924 | 1-Yr | 1.20 | 208.67 | 208.86 | | 208.88 | 0.048504 | 1.03 | 1.17 | 11.37 | 0.56 |
| | | | | | | | | | | | | |
| 1 | 919 | 100-Yr | 5.30 | 208.55 | 208.94 | | 208.97 | 0.021465 | 1.45 | 4.23 | 17.73 | 0.45 |
| 1 | 919 | 10-Yr | 3.20 | 208.55 | 208.86 | | 208.89 | 0.022157 | 1.21 | 2.91 | 15.50 | 0.44 |
| 1 | 919 | 2-Yr | 1.80 | 208.55 | 208.80 | | 208.82 | 0.020625 | 0.96 | 2.00 | 13.78 | 0.40 |
| 1 | 919 | 1-Yr | 1.20 | 208.55 | 208.76 | | 208.77 | 0.022522 | 0.84 | 1.47 | 12.43 | 0.40 |
| | | | | | | | | | | | | |
| 1 | 916 | 100-Yr | 5.30 | 208.46 | 208.86 | | 208.90 | 0.026402 | 1.65 | 4.00 | 16.71 | 0.51 |
| 1 | 916 | 10-Yr | 3.20 | 208.46 | 208.78 | | 208.80 | 0.028885 | 1.42 | 2.68 | 14.34 | 0.50 |
| 1 | 916 | 2-Yr | 1.80 | 208.46 | 208.70 | | 208.72 | 0.033061 | 1.20 | 1.70 | 12.33 | 0.51 |
| 1 | 916 | 1-Yr | 1.20 | 208.46 | 208.66 | | 208.68 | 0.038423 | 1.09 | 1.21 | 11.02 | 0.52 |
| | | | | | | | | | | | | |
| 1 | 911 | 100-Yr | 5.30 | 208.34 | 208.79 | | 208.82 | 0.024529 | 1.79 | 4.65 | 20.73 | 0.50 |
| 1 | 911 | 10-Yr | 3.20 | 208.34 | 208.71 | | 208.73 | 0.022393 | 1.47 | 3.18 | 15.08 | 0.46 |
| 1 | 911 | 2-Yr | 1.80 | 208.34 | 208.63 | | 208.64 | 0.020302 | 1.16 | 2.15 | 12.18 | 0.42 |
| 1 | 911 | 1-Yr | 1.20 | 208.34 | 208.58 | | 208.59 | 0.021224 | 1.01 | 1.59 | 10.73 | 0.41 |
| | | | | | | | | | | | | |
| 1 | 907 | 100-Yr | 5.30 | 208.22 | 208.55 | 208.55 | 208.64 | 0.083278 | 2.53 | 2.63 | 17.06 | 0.86 |
| 1 | 907 | 10-Yr | 3.20 | 208.22 | 208.49 | 208.48 | 208.56 | 0.080097 | 2.10 | 1.74 | 13.12 | 0.81 |
| 1 | 907 | 2-Yr | 1.80 | 208.22 | 208.44 | | 208.48 | 0.070059 | 1.63 | 1.16 | 9.73 | 0.73 |
| 1 | 907 | 1-Yr | 1.20 | 208.22 | 208.42 | | 208.45 | 0.053482 | 1.28 | 0.95 | 8.35 | 0.62 |
| | | | | | | | | | | | | |
| 1 | 902 | 100-Yr | 5.30 | 208.09 | 208.27 | 208.36 | 208.64 | 1.318076 | 4.89 | 1.08 | 12.04 | 2.87 |

HEC-RAS Plan: Exist River: Unnamed_Trib Reach: 1 (Continued)

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|-------|-----------|---------|---------|-----------|-----------|-----------|-----------|------------|----------|-----------|-----------|--------------|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 902 | 10-Yr | 3.20 | 208.09 | 208.37 | | 208.39 | 0.037333 | 1.31 | 2.59 | 18.18 | 0.54 |
| 1 | 902 | 2-Yr | 1.80 | 208.09 | 208.33 | | 208.34 | 0.029584 | 0.98 | 1.88 | 15.43 | 0.46 |
| 1 | 902 | 1-Yr | 1.20 | 208.09 | 208.29 | | 208.30 | 0.039683 | 0.91 | 1.32 | 13.16 | 0.51 |
| | | | | | | | | | | | | |
| 1 | 897 | 100-Yr | 5.30 | 207.90 | 208.23 | 208.19 | 208.28 | 0.055213 | 1.85 | 3.27 | 20.41 | 0.69 |
| 1 | 897 | 10-Yr | 3.20 | 207.90 | 208.17 | 208.13 | 208.21 | 0.054661 | 1.53 | 2.25 | 16.82 | 0.65 |
| 1 | 897 | 2-Yr | 1.80 | 207.90 | 208.11 | 208.08 | 208.14 | 0.072470 | 1.36 | 1.35 | 12.44 | 0.70 |
| 1 | 897 | 1-Yr | 1.20 | 207.90 | 208.10 | 208.04 | 208.11 | 0.047117 | 1.05 | 1.16 | 11.25 | 0.56 |
| | | | | | | | | | | | | |
| 1 | 893 | 100-Yr | 5.30 | 207.69 | 207.96 | 207.95 | 208.04 | 0.107273 | 2.35 | 2.36 | 13.94 | 0.93 |
| 1 | 893 | 10-Yr | 3.20 | 207.69 | 207.90 | 207.89 | 207.96 | 0.123976 | 2.04 | 1.59 | 12.00 | 0.95 |
| 1 | 893 | 2-Yr | 1.80 | 207.69 | 207.86 | | 207.90 | 0.093091 | 1.53 | 1.19 | 10.81 | 0.80 |
| 1 | 893 | 1-Yr | 1.20 | 207.69 | 207.82 | 207.82 | 207.86 | 0.176956 | 1.65 | 0.73 | 9.09 | 1.03 |
| | | | | | | | | | | | | |
| 1 | 881 | 100-Yr | 5.30 | 207.16 | 207.49 | 207.39 | 207.52 | 0.022926 | 1.48 | 4.99 | 22.44 | 0.47 |
| 1 | 881 | 10-Yr | 3.20 | 207.16 | 207.43 | 207.33 | 207.45 | 0.021257 | 1.21 | 3.57 | 20.13 | 0.43 |
| 1 | 881 | 2-Yr | 1.80 | 207.16 | 207.36 | 207.29 | 207.37 | 0.025081 | 1.05 | 2.23 | 17.30 | 0.44 |
| 1 | 881 | 1-Yr | 1.20 | 207.16 | 207.34 | 207.27 | 207.34 | 0.018614 | 0.83 | 1.86 | 16.48 | 0.37 |
| | | | | | | | | | | | | |
| 1 | 873 | 100-Yr | 5.30 | 206.84 | 207.01 | 207.01 | 207.07 | 0.190221 | 2.74 | 2.85 | 21.84 | 1.20 |
| 1 | 873 | 10-Yr | 3.20 | 206.84 | 206.97 | 206.97 | 207.02 | 0.216267 | 2.38 | 1.96 | 20.31 | 1.22 |
| 1 | 873 | 2-Yr | 1.80 | 206.84 | 206.95 | 206.95 | 206.97 | 0.105723 | 1.54 | 1.70 | 19.81 | 0.84 |
| 1 | 873 | 1-Yr | 1.20 | 206.84 | 206.92 | 206.92 | 206.94 | 0.241568 | 1.74 | 0.99 | 18.25 | 1.18 |
| | | | | | | | | | | | | |
| 1 | 842 | 100-Yr | 5.30 | 205.63 | 206.49 | 205.83 | 206.49 | 0.000202 | 0.27 | 27.75 | 48.97 | 0.05 |
| 1 | 842 | 10-Yr | 3.20 | 205.63 | 206.01 | 205.78 | 206.02 | 0.002351 | 0.51 | 7.67 | 31.37 | 0.15 |
| 1 | 842 | 2-Yr | 1.80 | 205.63 | 205.69 | 205.75 | 206.00 | 3.946725 | 4.53 | 0.40 | 11.31 | 4.25 |
| 1 | 842 | 1-Yr | 1.20 | 205.63 | 205.81 | 205.71 | 205.81 | 0.008932 | 0.53 | 2.37 | 19.89 | 0.25 |
| | | | | | | | | | | | | |
| 1 | 821 | 100-Yr | 5.30 | 205.36 | 206.49 | | 206.49 | 0.000080 | 0.20 | 40.19 | 59.72 | 0.03 |
| 1 | 821 | 10-Yr | 3.20 | 205.36 | 206.00 | | 206.00 | 0.000438 | 0.30 | 14.20 | 41.15 | 0.07 |
| 1 | 821 | 2-Yr | 1.80 | 205.36 | 205.65 | 205.50 | 205.66 | 0.004998 | 0.54 | 3.57 | 21.16 | 0.20 |
| 1 | 821 | 1-Yr | 1.20 | 205.36 | 205.55 | | 205.56 | 0.018636 | 0.70 | 1.72 | 15.09 | 0.36 |
| | | | | | | | | | | | | |
| 1 | 799 | 100-Yr | 5.30 | 205.21 | 206.49 | | 206.49 | 0.000028 | 0.13 | 67.97 | 75.87 | 0.02 |
| 1 | 799 | 10-Yr | 3.20 | 205.21 | 205.99 | | 206.00 | 0.000076 | 0.15 | 33.87 | 61.81 | 0.03 |
| 1 | 799 | 2-Yr | 1.80 | 205.21 | 205.64 | | 205.64 | 0.000370 | 0.22 | 13.60 | 50.78 | 0.06 |
| 1 | 799 | 1-Yr | 1.20 | 205.21 | 205.49 | | 205.49 | 0.001331 | 0.30 | 6.48 | 40.94 | 0.11 |
| | | | | | | | | | | | | |
| 1 | 789 | 100-Yr | 180.80 | 205.02 | 206.28 | | 206.44 | 0.045398 | 4.98 | 61.18 | 76.75 | 0.82 |
| 1 | 789 | 10-Yr | 77.10 | 205.02 | 205.77 | 205.72 | 205.93 | 0.087376 | 4.71 | 27.02 | 59.65 | 1.03 |
| 1 | 789 | 2-Yr | 21.20 | 205.02 | 205.49 | 205.49 | 205.57 | 0.089043 | 3.26 | 11.36 | 51.65 | 0.94 |
| 1 | 789 | 1-Yr | 7.30 | 205.02 | 205.33 | 205.33 | 205.40 | 0.130337 | 2.74 | 4.16 | 33.60 | 1.04 |
| | | | | | | | | | | | | |
| 1 | 723 | 100-Yr | 180.80 | 203.21 | 204.88 | | 204.98 | 0.013087 | 3.34 | 79.15 | 61.55 | 0.46 |
| 1 | 723 | 10-Yr | 77.10 | 203.21 | 204.35 | | 204.40 | 0.010441 | 2.29 | 48.29 | 55.22 | 0.39 |

HEC-RAS Plan: Exist River: Unnamed_Trib Reach: 1 (Continued)

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|-------|-----------|---------|---------|-----------|-----------|-----------|-----------|------------|----------|-----------|-----------|--------------|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 723 | 2-Yr | 21.20 | 203.21 | 203.85 | 203.59 | 203.87 | 0.008299 | 1.35 | 22.32 | 49.17 | 0.31 |
| 1 | 723 | 1-Yr | 7.30 | 203.21 | 203.61 | 203.45 | 203.62 | 0.009031 | 0.98 | 10.68 | 45.83 | 0.30 |
| | | | | | | | | | | | | |
| 1 | 720 | 100-Yr | 180.80 | 203.16 | 204.83 | | 204.93 | 0.015032 | 3.60 | 76.56 | 59.80 | 0.50 |
| 1 | 720 | 10-Yr | 77.10 | 203.16 | 204.31 | | 204.36 | 0.011477 | 2.44 | 47.38 | 53.66 | 0.41 |
| 1 | 720 | 2-Yr | 21.20 | 203.16 | 203.83 | | 203.84 | 0.008180 | 1.41 | 22.65 | 47.69 | 0.31 |
| 1 | 720 | 1-Yr | 7.30 | 203.16 | 203.58 | | 203.59 | 0.007521 | 0.97 | 11.44 | 43.96 | 0.28 |
| | | | | | | | | | | | | |
| 1 | 706 | 100-Yr | 180.80 | 202.88 | 204.31 | | 204.57 | 0.051413 | 5.96 | 51.23 | 57.16 | 0.89 |
| 1 | 706 | 10-Yr | 77.10 | 202.88 | 203.85 | | 204.04 | 0.061979 | 4.98 | 26.72 | 48.71 | 0.92 |
| 1 | 706 | 2-Yr | 21.20 | 202.88 | 203.43 | 203.43 | 203.57 | 0.082983 | 3.84 | 9.01 | 32.45 | 0.96 |
| 1 | 706 | 1-Yr | 7.30 | 202.88 | 203.23 | 203.23 | 203.32 | 0.090327 | 2.84 | 3.69 | 20.77 | 0.92 |
| | | | | | | | | | | | | |
| 1 | 695 | 100-Yr | 180.80 | 202.29 | 203.88 | | 204.13 | 0.032270 | 5.02 | 55.75 | 58.45 | 0.72 |
| 1 | 695 | 10-Yr | 77.10 | 202.29 | 203.38 | | 203.55 | 0.033471 | 3.90 | 29.15 | 47.39 | 0.69 |
| 1 | 695 | 2-Yr | 21.20 | 202.29 | 202.91 | 202.80 | 203.00 | 0.033414 | 2.57 | 10.52 | 30.42 | 0.62 |
| 1 | 695 | 1-Yr | 7.30 | 202.29 | 202.69 | 202.59 | 202.73 | 0.029220 | 1.69 | 4.83 | 21.09 | 0.53 |
| | | | | | | | | | | | | |
| 1 | 693 | 100-Yr | 180.80 | 202.23 | 203.82 | | 204.03 | 0.030370 | 4.90 | 58.40 | 58.59 | 0.70 |
| 1 | 693 | 10-Yr | 77.10 | 202.23 | 203.32 | | 203.45 | 0.029180 | 3.69 | 31.83 | 47.89 | 0.64 |
| 1 | 693 | 2-Yr | 21.20 | 202.23 | 202.84 | | 202.91 | 0.029206 | 2.44 | 12.23 | 34.59 | 0.58 |
| 1 | 693 | 1-Yr | 7.30 | 202.23 | 202.62 | | 202.66 | 0.025335 | 1.63 | 5.65 | 24.65 | 0.50 |
| | | | | | | | | | | | | |
| 1 | 690 | 100-Yr | 180.80 | 202.17 | 203.74 | | 203.94 | 0.026567 | 4.53 | 60.84 | 58.94 | 0.65 |
| 1 | 690 | 10-Yr | 77.10 | 202.17 | 203.25 | | 203.36 | 0.024929 | 3.36 | 33.85 | 49.36 | 0.59 |
| 1 | 690 | 2-Yr | 21.20 | 202.17 | 202.77 | | 202.82 | 0.025160 | 2.19 | 13.29 | 36.47 | 0.53 |
| 1 | 690 | 1-Yr | 7.30 | 202.17 | 202.54 | | 202.58 | 0.028036 | 1.60 | 5.82 | 29.93 | 0.51 |
| | | | | | | | | | | | | |
| 1 | 684 | 100-Yr | 180.80 | 202.02 | 203.52 | | 203.77 | 0.038036 | 5.26 | 54.59 | 58.97 | 0.77 |
| 1 | 684 | 10-Yr | 77.10 | 202.02 | 203.08 | | 203.21 | 0.031124 | 3.73 | 31.13 | 46.89 | 0.66 |
| 1 | 684 | 2-Yr | 21.20 | 202.02 | 202.65 | | 202.70 | 0.021120 | 2.11 | 13.94 | 34.48 | 0.49 |
| 1 | 684 | 1-Yr | 7.30 | 202.02 | 202.45 | | 202.47 | 0.014789 | 1.31 | 7.43 | 29.36 | 0.38 |
| | | | | | | | | | | | | |
| 1 | 676 | 100-Yr | 180.80 | 201.73 | 203.08 | 202.99 | 203.38 | 0.060370 | 6.06 | 48.04 | 57.32 | 0.95 |
| 1 | 676 | 10-Yr | 77.10 | 201.73 | 202.66 | 202.62 | 202.86 | 0.063976 | 4.76 | 25.96 | 48.67 | 0.92 |
| 1 | 676 | 2-Yr | 21.20 | 201.73 | 202.32 | 202.32 | 202.43 | 0.060997 | 3.26 | 10.41 | 41.14 | 0.82 |
| 1 | 676 | 1-Yr | 7.30 | 201.73 | 202.10 | 202.10 | 202.21 | 0.100235 | 2.84 | 3.14 | 22.54 | 0.95 |
| | | | | | | | | | | | | |
| 1 | 673 | 100-Yr | 180.80 | 201.36 | 202.80 | 202.80 | 203.18 | 0.066137 | 6.62 | 45.70 | 57.74 | 1.01 |
| 1 | 673 | 10-Yr | 77.10 | 201.36 | 202.43 | 202.43 | 202.67 | 0.057608 | 4.97 | 25.71 | 49.89 | 0.89 |
| 1 | 673 | 2-Yr | 21.20 | 201.36 | 201.95 | 201.99 | 202.19 | 0.104195 | 4.20 | 6.33 | 20.61 | 1.07 |
| 1 | 673 | 1-Yr | 7.30 | 201.36 | 201.72 | 201.74 | 201.87 | 0.136466 | 3.12 | 2.50 | 12.85 | 1.10 |
| | | | | | | | | | | | | |
| 1 | 670 | 100-Yr | 180.80 | 200.97 | 202.32 | 202.46 | 202.91 | 0.111069 | 8.22 | 37.17 | 51.26 | 1.29 |
| 1 | 670 | 10-Yr | 77.10 | 200.97 | 201.95 | 202.09 | 202.42 | 0.118664 | 6.73 | 19.23 | 45.50 | 1.26 |
| 1 | 670 | 2-Yr | 21.20 | 200.97 | 201.53 | 201.62 | 201.82 | 0.138017 | 4.72 | 5.97 | 22.00 | 1.22 |

HEC-RAS Plan: Exist River: Unnamed_Trib Reach: 1 (Continued)

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|-------|-----------|---------|---------|-----------|-----------|-----------|-----------|------------|----------|-----------|-----------|--------------|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 670 | 1-Yr | 7.30 | 200.97 | 201.35 | 201.36 | 201.48 | 0.112676 | 3.06 | 2.70 | 13.41 | 1.02 |
| 1 | 660 | 100-Yr | 180.80 | 199.35 | 201.69 | 201.49 | 202.10 | 0.026589 | 5.96 | 46.41 | 39.48 | 0.70 |
| 1 | 660 | 10-Yr | 77.10 | 199.35 | 200.47 | 200.66 | 201.22 | 0.109250 | 7.22 | 12.31 | 16.14 | 1.24 |
| 1 | 660 | 2-Yr | 21.20 | 199.35 | 199.86 | 199.96 | 200.25 | 0.166871 | 5.04 | 4.29 | 10.44 | 1.33 |
| 1 | 660 | 1-Yr | 7.30 | 199.35 | 199.62 | 199.68 | 199.84 | 0.241288 | 3.71 | 1.97 | 9.21 | 1.41 |
| 1 | 656 | 100-Yr | 180.80 | 198.67 | 201.33 | 201.33 | 201.96 | 0.046183 | 8.67 | 39.11 | 30.91 | 0.94 |
| 1 | 656 | 10-Yr | 77.10 | 198.67 | 200.34 | 200.41 | 200.96 | 0.068485 | 7.71 | 15.72 | 16.32 | 1.06 |
| 1 | 656 | 2-Yr | 21.20 | 198.67 | 199.46 | 199.48 | 199.80 | 0.091893 | 5.34 | 5.21 | 8.95 | 1.08 |
| 1 | 656 | 1-Yr | 7.30 | 198.67 | 199.12 | 199.12 | 199.30 | 0.100382 | 3.74 | 2.41 | 7.37 | 1.02 |
| 1 | 653 | 100-Yr | 180.80 | 198.18 | 200.92 | 201.06 | 201.80 | 0.048347 | 8.74 | 32.50 | 25.46 | 0.95 |
| 1 | 653 | 10-Yr | 77.10 | 198.18 | 199.76 | 199.99 | 200.70 | 0.094891 | 8.27 | 11.58 | 12.03 | 1.21 |
| 1 | 653 | 2-Yr | 21.20 | 198.18 | 198.96 | 199.08 | 199.46 | 0.134113 | 5.74 | 3.90 | 7.22 | 1.26 |
| 1 | 653 | 1-Yr | 7.30 | 198.18 | 198.62 | 198.68 | 198.89 | 0.187283 | 4.18 | 1.75 | 5.62 | 1.32 |
| 1 | 641 | 100-Yr | 180.80 | 197.06 | 198.73 | 199.30 | 200.62 | 0.238336 | 13.82 | 18.35 | 14.27 | 1.93 |
| 1 | 641 | 10-Yr | 77.10 | 197.06 | 198.18 | 198.45 | 199.14 | 0.204878 | 9.63 | 10.89 | 12.70 | 1.67 |
| 1 | 641 | 2-Yr | 21.20 | 197.06 | 197.82 | 197.74 | 198.02 | 0.074822 | 4.36 | 6.48 | 11.51 | 0.94 |
| 1 | 641 | 1-Yr | 7.30 | 197.06 | 197.51 | 197.47 | 197.61 | 0.078981 | 3.02 | 3.16 | 9.99 | 0.87 |
| 1 | 639 | 100-Yr | 180.80 | 196.88 | 199.44 | 199.10 | 200.06 | 0.045363 | 8.14 | 32.85 | 17.01 | 0.91 |
| 1 | 639 | 10-Yr | 77.10 | 196.88 | 198.52 | 198.25 | 198.86 | 0.045083 | 5.94 | 18.29 | 14.48 | 0.84 |
| 1 | 639 | 2-Yr | 21.20 | 196.88 | 197.73 | | 197.87 | 0.044459 | 3.69 | 7.80 | 12.30 | 0.74 |
| 1 | 639 | 1-Yr | 7.30 | 196.88 | 197.40 | | 197.47 | 0.045235 | 2.55 | 3.87 | 11.29 | 0.68 |
| 1 | 636 | 100-Yr | 180.80 | 196.78 | 199.34 | | 199.94 | 0.030169 | 6.53 | 32.45 | 17.23 | 0.74 |
| 1 | 636 | 10-Yr | 77.10 | 196.78 | 198.41 | | 198.75 | 0.032057 | 4.84 | 17.53 | 14.70 | 0.70 |
| 1 | 636 | 2-Yr | 21.20 | 196.78 | 197.61 | | 197.76 | 0.036482 | 3.06 | 7.01 | 11.28 | 0.66 |
| 1 | 636 | 1-Yr | 7.30 | 196.78 | 197.28 | | 197.34 | 0.037946 | 2.07 | 3.52 | 9.81 | 0.61 |
| 1 | 625 | 100-Yr | 180.80 | 196.42 | 198.81 | 198.65 | 199.55 | 0.039545 | 7.31 | 30.09 | 18.34 | 0.85 |
| 1 | 625 | 10-Yr | 77.10 | 196.42 | 197.97 | | 198.37 | 0.036884 | 5.22 | 16.58 | 14.18 | 0.76 |
| 1 | 625 | 2-Yr | 21.20 | 196.42 | 197.23 | | 197.37 | 0.033256 | 3.09 | 7.16 | 11.22 | 0.64 |
| 1 | 625 | 1-Yr | 7.30 | 196.42 | 196.90 | | 196.96 | 0.032406 | 2.01 | 3.66 | 9.86 | 0.57 |
| 1 | 622 | 100-Yr | 180.80 | 196.32 | 198.71 | 198.56 | 199.42 | 0.039140 | 7.32 | 31.53 | 19.88 | 0.85 |
| 1 | 622 | 10-Yr | 77.10 | 196.32 | 197.84 | 197.68 | 198.26 | 0.040407 | 5.43 | 16.53 | 14.78 | 0.80 |
| 1 | 622 | 2-Yr | 21.20 | 196.32 | 197.11 | | 197.27 | 0.037047 | 3.24 | 7.01 | 11.39 | 0.68 |
| 1 | 622 | 1-Yr | 7.30 | 196.32 | 196.80 | | 196.86 | 0.031198 | 2.03 | 3.70 | 10.06 | 0.57 |
| 1 | 619 | 100-Yr | 180.80 | 196.23 | 198.71 | | 199.27 | 0.029856 | 6.53 | 35.74 | 21.99 | 0.75 |
| 1 | 619 | 10-Yr | 77.10 | 196.23 | 197.75 | | 198.13 | 0.037072 | 5.16 | 17.42 | 16.09 | 0.76 |
| 1 | 619 | 2-Yr | 21.20 | 196.23 | 196.97 | | 197.14 | 0.045529 | 3.37 | 6.66 | 11.77 | 0.74 |
| 1 | 619 | 1-Yr | 7.30 | 196.23 | 196.64 | | 196.73 | 0.062926 | 2.45 | 3.02 | 10.18 | 0.77 |

HEC-RAS Plan: Exist River: Unnamed_Trib Reach: 1 (Continued)

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|-------|-----------|---------|---------|-----------|-----------|-----------|-----------|------------|----------|-----------|-----------|--------------|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 608 | 100-Yr | 180.80 | 195.95 | 198.92 | | 199.02 | 0.005104 | 3.07 | 81.12 | 37.35 | 0.32 |
| 1 | 608 | 10-Yr | 77.10 | 195.95 | 197.84 | | 197.91 | 0.005623 | 2.36 | 43.53 | 32.44 | 0.31 |
| 1 | 608 | 2-Yr | 21.20 | 195.95 | 196.91 | | 196.94 | 0.006988 | 1.63 | 16.01 | 24.69 | 0.31 |
| 1 | 608 | 1-Yr | 7.30 | 195.95 | 196.49 | | 196.51 | 0.008386 | 1.17 | 7.03 | 18.74 | 0.30 |
| 1 | 605 | 100-Yr | 180.80 | 195.88 | 198.88 | | 199.00 | 0.005815 | 3.31 | 77.36 | 35.77 | 0.34 |
| 1 | 605 | 10-Yr | 77.10 | 195.88 | 197.81 | | 197.89 | 0.006211 | 2.53 | 41.64 | 30.74 | 0.33 |
| 1 | 605 | 2-Yr | 21.20 | 195.88 | 196.89 | | 196.92 | 0.006258 | 1.61 | 16.57 | 22.88 | 0.29 |
| 1 | 605 | 1-Yr | 7.30 | 195.88 | 196.47 | | 196.49 | 0.006287 | 1.09 | 7.92 | 18.87 | 0.27 |
| 1 | 602 | 100-Yr | 180.80 | 195.81 | 198.81 | | 198.97 | 0.011638 | 4.74 | 65.36 | 34.37 | 0.48 |
| 1 | 602 | 10-Yr | 77.10 | 195.81 | 197.76 | | 197.86 | 0.010965 | 3.45 | 34.80 | 23.39 | 0.44 |
| 1 | 602 | 2-Yr | 21.20 | 195.81 | 196.86 | | 196.90 | 0.009404 | 2.10 | 15.38 | 19.65 | 0.36 |
| 1 | 602 | 1-Yr | 7.30 | 195.81 | 196.45 | | 196.47 | 0.009191 | 1.47 | 7.63 | 17.83 | 0.33 |
| 1 | 591 | 100-Yr | 180.80 | 195.62 | 198.68 | | 198.85 | 0.012214 | 4.89 | 65.08 | 34.67 | 0.50 |
| 1 | 591 | 10-Yr | 77.10 | 195.62 | 197.62 | | 197.74 | 0.012819 | 3.76 | 33.55 | 25.32 | 0.47 |
| 1 | 591 | 2-Yr | 21.20 | 195.62 | 196.67 | | 196.76 | 0.019865 | 3.01 | 11.71 | 20.67 | 0.53 |
| 1 | 591 | 1-Yr | 7.30 | 195.62 | 196.25 | | 196.31 | 0.025530 | 2.38 | 4.39 | 12.08 | 0.55 |
| 1 | 588 | 100-Yr | 180.80 | 195.58 | 198.66 | | 198.81 | 0.011007 | 4.69 | 67.69 | 35.02 | 0.47 |
| 1 | 588 | 10-Yr | 77.10 | 195.58 | 197.59 | | 197.70 | 0.012577 | 3.76 | 34.39 | 26.64 | 0.47 |
| 1 | 588 | 2-Yr | 21.20 | 195.58 | 196.60 | | 196.69 | 0.022361 | 3.16 | 11.16 | 20.35 | 0.56 |
| 1 | 588 | 1-Yr | 7.30 | 195.58 | 196.17 | | 196.23 | 0.027326 | 2.39 | 4.37 | 12.11 | 0.56 |
| 1 | 576 | 100-Yr | 180.80 | 195.43 | 198.60 | | 198.72 | 0.005170 | 3.23 | 81.81 | 39.37 | 0.32 |
| 1 | 576 | 10-Yr | 77.10 | 195.43 | 197.53 | | 197.60 | 0.005143 | 2.42 | 43.81 | 31.51 | 0.30 |
| 1 | 576 | 2-Yr | 21.20 | 195.43 | 196.51 | | 196.55 | 0.006481 | 1.70 | 15.39 | 22.78 | 0.30 |
| 1 | 576 | 1-Yr | 7.30 | 195.43 | 196.04 | | 196.06 | 0.008300 | 1.25 | 6.34 | 15.48 | 0.30 |
| 1 | 570 | 100-Yr | 180.80 | 195.35 | 198.58 | | 198.68 | 0.005266 | 3.32 | 85.15 | 39.18 | 0.33 |
| 1 | 570 | 10-Yr | 77.10 | 195.35 | 197.50 | | 197.56 | 0.005201 | 2.50 | 46.55 | 32.33 | 0.30 |
| 1 | 570 | 2-Yr | 21.20 | 195.35 | 196.47 | | 196.51 | 0.006566 | 1.79 | 16.85 | 24.02 | 0.31 |
| 1 | 570 | 1-Yr | 7.30 | 195.35 | 195.98 | | 196.01 | 0.008242 | 1.34 | 6.97 | 16.66 | 0.31 |
| 1 | 563 | 100-Yr | 180.80 | 195.28 | 198.53 | | 198.64 | 0.005427 | 3.38 | 80.30 | 34.36 | 0.33 |
| 1 | 563 | 10-Yr | 77.10 | 195.28 | 197.47 | | 197.53 | 0.004894 | 2.44 | 46.17 | 29.74 | 0.30 |
| 1 | 563 | 2-Yr | 21.20 | 195.28 | 196.43 | | 196.46 | 0.005718 | 1.69 | 17.91 | 24.44 | 0.29 |
| 1 | 563 | 1-Yr | 7.30 | 195.28 | 195.92 | | 195.95 | 0.009142 | 1.40 | 6.79 | 18.18 | 0.33 |
| 1 | 541 | 100-Yr | 180.80 | 194.97 | 198.28 | | 198.48 | 0.007816 | 4.03 | 59.46 | 26.24 | 0.40 |
| 1 | 541 | 10-Yr | 77.10 | 194.97 | 197.31 | | 197.40 | 0.005764 | 2.70 | 35.78 | 22.23 | 0.32 |
| 1 | 541 | 2-Yr | 21.20 | 194.97 | 196.32 | | 196.35 | 0.004179 | 1.54 | 15.83 | 17.96 | 0.25 |
| 1 | 541 | 1-Yr | 7.30 | 194.97 | 195.81 | | 195.82 | 0.003625 | 0.99 | 7.74 | 13.52 | 0.21 |

HEC-RAS Plan: Exist River: Unnamed_Trib Reach: 1 (Continued)

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|-------|-----------|---------|---------|-----------|-----------|-----------|-----------|------------|----------|-----------|-----------|--------------|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 539 | 100-Yr | 180.80 | 194.93 | 198.23 | | 198.46 | 0.009243 | 4.27 | 56.54 | 26.24 | 0.43 |
| 1 | 539 | 10-Yr | 77.10 | 194.93 | 197.27 | | 197.38 | 0.007257 | 2.94 | 33.13 | 22.27 | 0.36 |
| 1 | 539 | 2-Yr | 21.20 | 194.93 | 196.29 | | 196.34 | 0.005824 | 1.73 | 13.75 | 16.48 | 0.29 |
| 1 | 539 | 1-Yr | 7.30 | 194.93 | 195.79 | | 195.81 | 0.005680 | 1.14 | 6.60 | 11.85 | 0.26 |
| | | | | | | | | | | | | |
| 1 | 531 | 100-Yr | 180.80 | 194.72 | 197.69 | 197.53 | 198.30 | 0.031197 | 6.90 | 35.74 | 23.44 | 0.75 |
| 1 | 531 | 10-Yr | 77.10 | 194.72 | 196.97 | | 197.27 | 0.021411 | 4.61 | 20.46 | 18.03 | 0.59 |
| 1 | 531 | 2-Yr | 21.20 | 194.72 | 196.18 | | 196.27 | 0.011462 | 2.36 | 9.33 | 10.34 | 0.39 |
| 1 | 531 | 1-Yr | 7.30 | 194.72 | 195.72 | | 195.75 | 0.007910 | 1.40 | 5.21 | 7.78 | 0.30 |
| | | | | | | | | | | | | |
| 1 | 490 | 100-Yr | 180.80 | 194.45 | 196.29 | 196.12 | 196.80 | 0.041978 | 5.98 | 34.04 | 24.94 | 0.83 |
| 1 | 490 | 10-Yr | 77.10 | 194.45 | 195.58 | 195.52 | 195.92 | 0.057988 | 4.77 | 17.38 | 21.80 | 0.88 |
| 1 | 490 | 2-Yr | 21.20 | 194.45 | 195.04 | 195.04 | 195.22 | 0.096034 | 3.39 | 6.34 | 18.95 | 0.98 |
| 1 | 490 | 1-Yr | 7.30 | 194.45 | 194.81 | 194.81 | 194.92 | 0.122072 | 2.65 | 2.75 | 12.79 | 1.01 |
| | | | | | | | | | | | | |
| 1 | 476 | 100-Yr | 180.80 | 194.27 | 196.39 | | 196.64 | 0.018372 | 4.60 | 50.96 | 31.48 | 0.57 |
| 1 | 476 | 10-Yr | 77.10 | 194.27 | 195.62 | | 195.76 | 0.018572 | 3.36 | 28.44 | 27.15 | 0.53 |
| 1 | 476 | 2-Yr | 21.20 | 194.27 | 194.97 | 194.76 | 195.03 | 0.019853 | 2.12 | 11.85 | 23.41 | 0.48 |
| 1 | 476 | 1-Yr | 7.30 | 194.27 | 194.71 | 194.59 | 194.74 | 0.017824 | 1.38 | 6.08 | 21.72 | 0.42 |
| | | | | | | | | | | | | |
| 1 | 467 | 100-Yr | 180.80 | 194.06 | 196.13 | | 196.45 | 0.024896 | 5.33 | 45.86 | 28.94 | 0.66 |
| 1 | 467 | 10-Yr | 77.10 | 194.06 | 195.41 | | 195.58 | 0.022996 | 3.80 | 26.36 | 25.20 | 0.59 |
| 1 | 467 | 2-Yr | 21.20 | 194.06 | 194.74 | | 194.82 | 0.026986 | 2.52 | 10.53 | 21.93 | 0.57 |
| 1 | 467 | 1-Yr | 7.30 | 194.06 | 194.43 | | 194.49 | 0.043704 | 2.03 | 4.16 | 17.96 | 0.64 |
| | | | | | | | | | | | | |
| 1 | 445 | 100-Yr | 180.80 | 193.51 | 195.64 | | 195.94 | 0.021393 | 5.01 | 47.68 | 31.19 | 0.62 |
| 1 | 445 | 10-Yr | 77.10 | 193.51 | 194.98 | 194.61 | 195.14 | 0.017279 | 3.49 | 28.30 | 27.96 | 0.52 |
| 1 | 445 | 2-Yr | 21.20 | 193.51 | 194.34 | | 194.40 | 0.013763 | 2.07 | 11.90 | 21.52 | 0.42 |
| 1 | 445 | 1-Yr | 7.30 | 193.51 | 194.03 | | 194.05 | 0.010852 | 1.29 | 5.99 | 16.40 | 0.34 |
| | | | | | | | | | | | | |
| 1 | 437 | 100-Yr | 180.80 | 193.43 | 195.43 | | 195.75 | 0.024675 | 5.08 | 46.06 | 33.33 | 0.65 |
| 1 | 437 | 10-Yr | 77.10 | 193.43 | 194.49 | 194.49 | 194.87 | 0.064201 | 5.17 | 17.43 | 25.67 | 0.94 |
| 1 | 437 | 2-Yr | 21.20 | 193.43 | 193.96 | 193.96 | 194.15 | 0.095060 | 3.59 | 6.08 | 16.65 | 0.99 |
| 1 | 437 | 1-Yr | 7.30 | 193.43 | 193.73 | 193.73 | 193.84 | 0.116008 | 2.65 | 2.77 | 12.81 | 0.99 |
| | | | | | | | | | | | | |
| 1 | 397 | 100-Yr | 228.00 | 191.89 | 195.01 | | 195.20 | 0.008668 | 4.07 | 77.00 | 36.98 | 0.42 |
| 1 | 397 | 10-Yr | 104.80 | 191.89 | 193.98 | 193.20 | 194.11 | 0.009173 | 3.16 | 42.77 | 29.83 | 0.40 |
| 1 | 397 | 2-Yr | 35.00 | 191.89 | 193.05 | 192.63 | 193.12 | 0.011654 | 2.31 | 18.00 | 23.13 | 0.40 |
| 1 | 397 | 1-Yr | 15.90 | 191.89 | 192.62 | 192.39 | 192.68 | 0.017144 | 1.94 | 9.05 | 18.52 | 0.45 |
| | | | | | | | | | | | | |
| 1 | 372 | 100-Yr | 228.00 | 191.41 | 194.72 | | 194.97 | 0.009491 | 4.49 | 68.24 | 30.92 | 0.44 |
| 1 | 372 | 10-Yr | 104.80 | 191.41 | 193.76 | | 193.90 | 0.007702 | 3.19 | 41.32 | 25.28 | 0.37 |
| 1 | 372 | 2-Yr | 35.00 | 191.41 | 192.87 | | 192.92 | 0.005527 | 1.94 | 21.07 | 20.07 | 0.29 |
| 1 | 372 | 1-Yr | 15.90 | 191.41 | 192.45 | | 192.47 | 0.004411 | 1.35 | 13.06 | 17.56 | 0.24 |
| | | | | | | | | | | | | |
| 1 | 360 | 100-Yr | 228.00 | 191.41 | 194.57 | | 194.85 | 0.011833 | 4.82 | 65.03 | 31.38 | 0.49 |

HEC-RAS Plan: Exist River: Unnamed_Trib Reach: 1 (Continued)

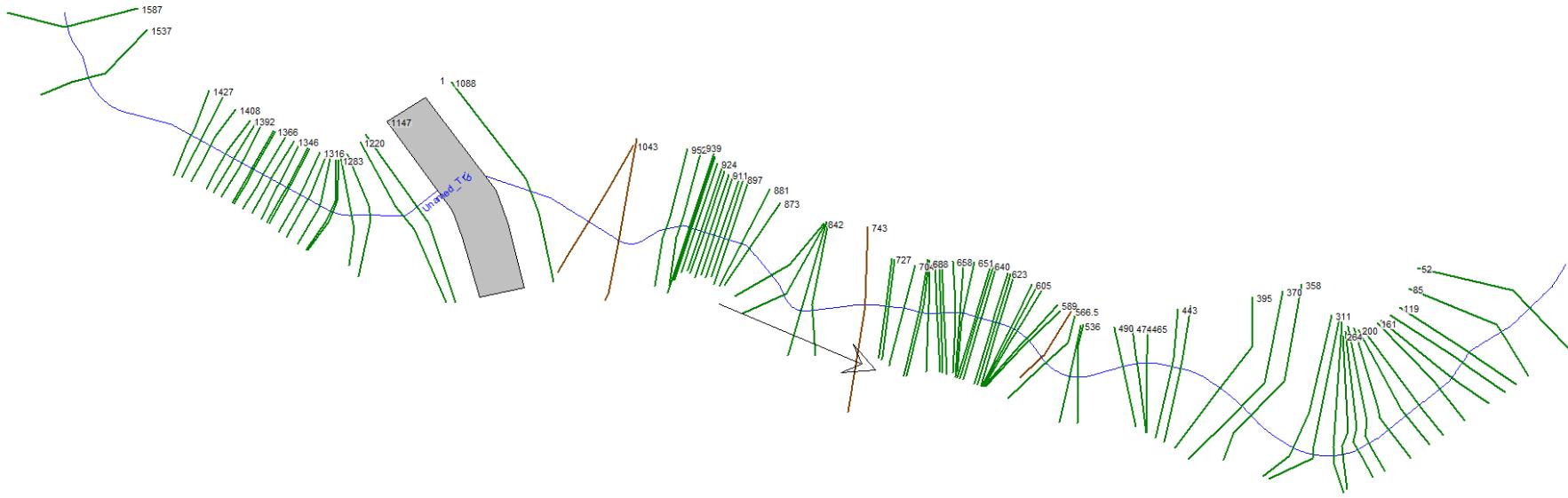
| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|-------|-----------|---------|---------|-----------|-----------|-----------|-----------|------------|----------|-----------|-----------|--------------|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 360 | 10-Yr | 104.80 | 191.41 | 193.63 | | 193.79 | 0.010550 | 3.56 | 38.07 | 25.89 | 0.43 |
| 1 | 360 | 2-Yr | 35.00 | 191.41 | 192.77 | | 192.84 | 0.008820 | 2.29 | 18.01 | 20.22 | 0.36 |
| 1 | 360 | 1-Yr | 15.90 | 191.41 | 192.37 | | 192.41 | 0.007486 | 1.63 | 10.70 | 16.21 | 0.31 |
| | | | | | | | | | | | | |
| 1 | 354 | 100-Yr | 228.00 | 191.40 | 194.47 | | 194.76 | 0.012928 | 4.90 | 62.72 | 32.17 | 0.50 |
| 1 | 354 | 10-Yr | 104.80 | 191.40 | 193.53 | | 193.71 | 0.012606 | 3.74 | 35.16 | 26.34 | 0.47 |
| 1 | 354 | 2-Yr | 35.00 | 191.40 | 192.69 | | 192.78 | 0.010877 | 2.41 | 16.11 | 18.73 | 0.40 |
| 1 | 354 | 1-Yr | 15.90 | 191.40 | 192.31 | | 192.35 | 0.009400 | 1.71 | 9.64 | 14.91 | 0.34 |
| | | | | | | | | | | | | |
| 1 | 313 | 100-Yr | 228.00 | 191.03 | 194.04 | | 194.26 | 0.010438 | 4.35 | 75.86 | 43.89 | 0.45 |
| 1 | 313 | 10-Yr | 104.80 | 191.03 | 193.03 | | 193.19 | 0.012499 | 3.54 | 38.30 | 30.71 | 0.46 |
| 1 | 313 | 2-Yr | 35.00 | 191.03 | 192.18 | | 192.27 | 0.014222 | 2.50 | 16.15 | 21.56 | 0.44 |
| 1 | 313 | 1-Yr | 15.90 | 191.03 | 191.83 | | 191.88 | 0.014089 | 1.85 | 9.28 | 17.79 | 0.41 |
| | | | | | | | | | | | | |
| 1 | 294 | 100-Yr | 228.00 | 190.88 | 194.00 | | 194.11 | 0.004481 | 2.91 | 104.85 | 52.37 | 0.30 |
| 1 | 294 | 10-Yr | 104.80 | 190.88 | 192.94 | | 193.02 | 0.005485 | 2.39 | 54.30 | 41.62 | 0.31 |
| 1 | 294 | 2-Yr | 35.00 | 190.88 | 192.03 | | 192.07 | 0.007208 | 1.75 | 21.69 | 28.90 | 0.31 |
| 1 | 294 | 1-Yr | 15.90 | 190.88 | 191.64 | | 191.67 | 0.008605 | 1.37 | 11.81 | 22.60 | 0.32 |
| | | | | | | | | | | | | |
| 1 | 279 | 100-Yr | 228.00 | 190.71 | 193.88 | | 194.02 | 0.005700 | 3.30 | 84.60 | 36.62 | 0.34 |
| 1 | 279 | 10-Yr | 104.80 | 190.71 | 192.84 | | 192.93 | 0.005810 | 2.51 | 48.99 | 32.00 | 0.32 |
| 1 | 279 | 2-Yr | 35.00 | 190.71 | 191.92 | | 191.96 | 0.006810 | 1.76 | 21.60 | 26.83 | 0.31 |
| 1 | 279 | 1-Yr | 15.90 | 190.71 | 191.52 | | 191.55 | 0.008045 | 1.37 | 11.89 | 21.67 | 0.31 |
| | | | | | | | | | | | | |
| 1 | 275 | 100-Yr | 228.00 | 190.68 | 193.83 | | 194.00 | 0.006732 | 3.65 | 80.27 | 34.90 | 0.37 |
| 1 | 275 | 10-Yr | 104.80 | 190.68 | 192.80 | | 192.90 | 0.006637 | 2.75 | 46.75 | 30.30 | 0.34 |
| 1 | 275 | 2-Yr | 35.00 | 190.68 | 191.89 | | 191.94 | 0.007149 | 1.90 | 21.06 | 25.33 | 0.32 |
| 1 | 275 | 1-Yr | 15.90 | 190.68 | 191.49 | | 191.52 | 0.007516 | 1.44 | 11.81 | 20.51 | 0.30 |
| | | | | | | | | | | | | |
| 1 | 267 | 100-Yr | 228.00 | 190.60 | 193.66 | | 193.91 | 0.013382 | 5.03 | 68.66 | 34.62 | 0.52 |
| 1 | 267 | 10-Yr | 104.80 | 190.60 | 192.66 | | 192.82 | 0.014077 | 3.90 | 37.78 | 26.67 | 0.49 |
| 1 | 267 | 2-Yr | 35.00 | 190.60 | 191.77 | | 191.86 | 0.014811 | 2.66 | 16.96 | 20.35 | 0.46 |
| 1 | 267 | 1-Yr | 15.90 | 190.60 | 191.38 | | 191.43 | 0.016330 | 2.04 | 9.51 | 17.59 | 0.44 |
| | | | | | | | | | | | | |
| 1 | 253 | 100-Yr | 228.00 | 190.27 | 193.41 | | 193.70 | 0.019453 | 6.28 | 61.47 | 29.55 | 0.63 |
| 1 | 253 | 10-Yr | 104.80 | 190.27 | 192.39 | | 192.59 | 0.021359 | 5.04 | 33.92 | 23.98 | 0.62 |
| 1 | 253 | 2-Yr | 35.00 | 190.27 | 191.51 | | 191.62 | 0.021261 | 3.50 | 15.43 | 18.28 | 0.56 |
| 1 | 253 | 1-Yr | 15.90 | 190.27 | 191.12 | | 191.19 | 0.021373 | 2.69 | 8.78 | 15.42 | 0.53 |
| | | | | | | | | | | | | |
| 1 | 241 | 100-Yr | 228.00 | 190.06 | 192.84 | | 193.40 | 0.028011 | 6.90 | 45.87 | 24.27 | 0.74 |
| 1 | 241 | 10-Yr | 104.80 | 190.06 | 192.00 | | 192.31 | 0.024202 | 5.00 | 27.38 | 20.00 | 0.64 |
| 1 | 241 | 2-Yr | 35.00 | 190.06 | 191.25 | | 191.38 | 0.018785 | 3.13 | 13.65 | 16.48 | 0.52 |
| 1 | 241 | 1-Yr | 15.90 | 190.06 | 190.90 | | 190.97 | 0.015416 | 2.22 | 8.30 | 14.31 | 0.44 |
| | | | | | | | | | | | | |
| 1 | 220 | 100-Yr | 233.70 | 189.81 | 192.53 | | 192.89 | 0.017063 | 5.09 | 54.81 | 29.52 | 0.56 |
| 1 | 220 | 10-Yr | 107.30 | 189.81 | 191.63 | | 191.85 | 0.018092 | 3.89 | 30.63 | 23.72 | 0.54 |

HEC-RAS Plan: Exist River: Unnamed_Trib Reach: 1 (Continued)

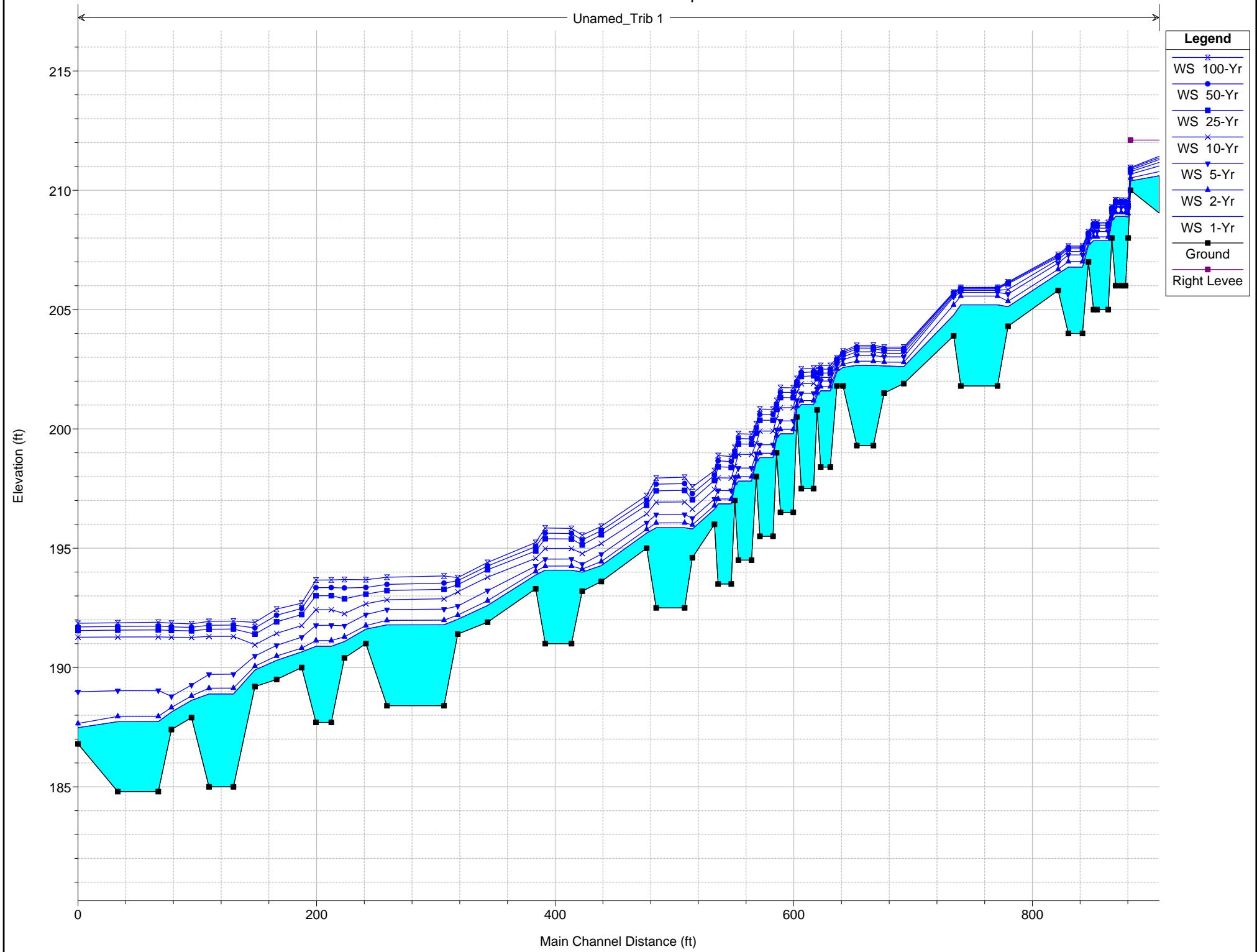
| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|-------|-----------|---------|---------|-----------|-----------|-----------|-----------|------------|----------|-----------|-----------|--------------|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 220 | 2-Yr | 36.60 | 189.81 | 190.76 | | 190.90 | 0.028172 | 2.99 | 12.67 | 17.85 | 0.60 |
| 1 | 220 | 1-Yr | 16.90 | 189.81 | 190.49 | | 190.56 | 0.024550 | 2.15 | 7.99 | 16.18 | 0.52 |
| | | | | | | | | | | | | |
| 1 | 200 | 100-Yr | 233.70 | 189.38 | 192.34 | | 192.59 | 0.010758 | 4.49 | 66.88 | 29.90 | 0.46 |
| 1 | 200 | 10-Yr | 107.30 | 189.38 | 191.45 | | 191.58 | 0.008463 | 3.13 | 42.14 | 25.93 | 0.39 |
| 1 | 200 | 2-Yr | 36.60 | 189.38 | 190.27 | | 190.38 | 0.022833 | 2.86 | 14.59 | 20.53 | 0.55 |
| 1 | 200 | 1-Yr | 16.90 | 189.38 | 189.93 | | 190.01 | 0.029881 | 2.33 | 7.98 | 18.64 | 0.58 |
| | | | | | | | | | | | | |
| 1 | 185 | 100-Yr | 233.70 | 188.95 | 192.24 | | 192.41 | 0.010273 | 4.73 | 80.54 | 32.82 | 0.46 |
| 1 | 185 | 10-Yr | 107.30 | 188.95 | 191.38 | | 191.45 | 0.006749 | 3.12 | 53.93 | 28.58 | 0.36 |
| 1 | 185 | 2-Yr | 36.60 | 188.95 | 190.03 | | 190.09 | 0.014696 | 2.66 | 19.91 | 22.09 | 0.46 |
| 1 | 185 | 1-Yr | 16.90 | 188.95 | 189.66 | | 189.70 | 0.014411 | 1.98 | 12.04 | 20.40 | 0.42 |
| | | | | | | | | | | | | |
| 1 | 161 | 100-Yr | 233.70 | 188.40 | 192.03 | | 192.18 | 0.008548 | 4.53 | 85.12 | 33.00 | 0.42 |
| 1 | 161 | 10-Yr | 107.30 | 188.40 | 191.25 | | 191.32 | 0.004770 | 2.87 | 60.64 | 29.79 | 0.30 |
| 1 | 161 | 2-Yr | 36.60 | 188.40 | 189.46 | | 189.59 | 0.033414 | 3.77 | 14.23 | 20.08 | 0.68 |
| 1 | 161 | 1-Yr | 16.90 | 188.40 | 189.15 | | 189.22 | 0.029969 | 2.75 | 8.50 | 16.29 | 0.60 |
| | | | | | | | | | | | | |
| 1 | 147 | 100-Yr | 233.70 | 188.10 | 191.99 | | 192.09 | 0.004099 | 3.31 | 104.67 | 35.71 | 0.30 |
| 1 | 147 | 10-Yr | 107.30 | 188.10 | 191.23 | | 191.27 | 0.001972 | 1.98 | 78.65 | 33.04 | 0.20 |
| 1 | 147 | 2-Yr | 36.60 | 188.10 | 189.19 | | 189.27 | 0.015551 | 2.67 | 18.85 | 25.32 | 0.47 |
| 1 | 147 | 1-Yr | 16.90 | 188.10 | 188.85 | | 188.90 | 0.017918 | 2.16 | 10.48 | 22.55 | 0.47 |
| | | | | | | | | | | | | |
| 1 | 133 | 100-Yr | 233.70 | 187.82 | 191.95 | | 192.04 | 0.002929 | 2.90 | 118.41 | 38.87 | 0.26 |
| 1 | 133 | 10-Yr | 107.30 | 187.82 | 191.21 | | 191.24 | 0.001336 | 1.71 | 90.62 | 36.21 | 0.17 |
| 1 | 133 | 2-Yr | 36.60 | 187.82 | 189.00 | | 189.08 | 0.012673 | 2.49 | 19.72 | 26.45 | 0.43 |
| 1 | 133 | 1-Yr | 16.90 | 187.82 | 188.62 | | 188.68 | 0.014709 | 2.00 | 10.61 | 21.44 | 0.43 |
| | | | | | | | | | | | | |
| 1 | 130 | 100-Yr | 233.70 | 187.77 | 191.95 | | 192.03 | 0.002555 | 2.71 | 120.62 | 39.46 | 0.24 |
| 1 | 130 | 10-Yr | 107.30 | 187.77 | 191.21 | | 191.24 | 0.001156 | 1.60 | 92.52 | 36.81 | 0.15 |
| 1 | 130 | 2-Yr | 36.60 | 187.77 | 188.97 | | 189.04 | 0.011498 | 2.35 | 19.46 | 26.13 | 0.40 |
| 1 | 130 | 1-Yr | 16.90 | 187.77 | 188.59 | | 188.63 | 0.013111 | 1.85 | 10.53 | 20.66 | 0.40 |
| | | | | | | | | | | | | |
| 1 | 119 | 100-Yr | 233.70 | 187.55 | 191.92 | | 192.00 | 0.002507 | 2.77 | 127.32 | 42.33 | 0.24 |
| 1 | 119 | 10-Yr | 107.30 | 187.55 | 191.20 | | 191.23 | 0.001122 | 1.64 | 97.71 | 39.35 | 0.15 |
| 1 | 119 | 2-Yr | 36.60 | 187.55 | 188.78 | | 188.89 | 0.016306 | 2.87 | 16.50 | 22.59 | 0.48 |
| 1 | 119 | 1-Yr | 16.90 | 187.55 | 188.39 | | 188.46 | 0.018610 | 2.29 | 8.73 | 17.05 | 0.48 |
| | | | | | | | | | | | | |
| 1 | 85 | 100-Yr | 233.70 | 187.02 | 191.86 | | 191.92 | 0.001813 | 2.54 | 136.81 | 40.61 | 0.21 |
| 1 | 85 | 10-Yr | 107.30 | 187.02 | 191.17 | | 191.20 | 0.000706 | 1.43 | 109.89 | 37.82 | 0.13 |
| 1 | 85 | 2-Yr | 36.60 | 187.02 | 188.19 | | 188.31 | 0.018530 | 2.96 | 15.50 | 21.63 | 0.51 |
| 1 | 85 | 1-Yr | 16.90 | 187.02 | 187.97 | | 188.01 | 0.009828 | 1.83 | 11.00 | 18.73 | 0.36 |
| | | | | | | | | | | | | |
| 1 | 52 | 100-Yr | 233.70 | 186.59 | 191.82 | 188.43 | 191.87 | 0.001199 | 2.17 | 150.24 | 38.04 | 0.17 |
| 1 | 52 | 10-Yr | 107.30 | 186.59 | 191.16 | 187.83 | 191.18 | 0.000419 | 1.17 | 125.82 | 35.98 | 0.10 |
| 1 | 52 | 2-Yr | 36.60 | 186.59 | 187.91 | 187.33 | 187.95 | 0.006074 | 1.84 | 24.70 | 26.24 | 0.30 |

HEC-RAS Plan: Exist River: Unnamed_Trib Reach: 1 (Continued)

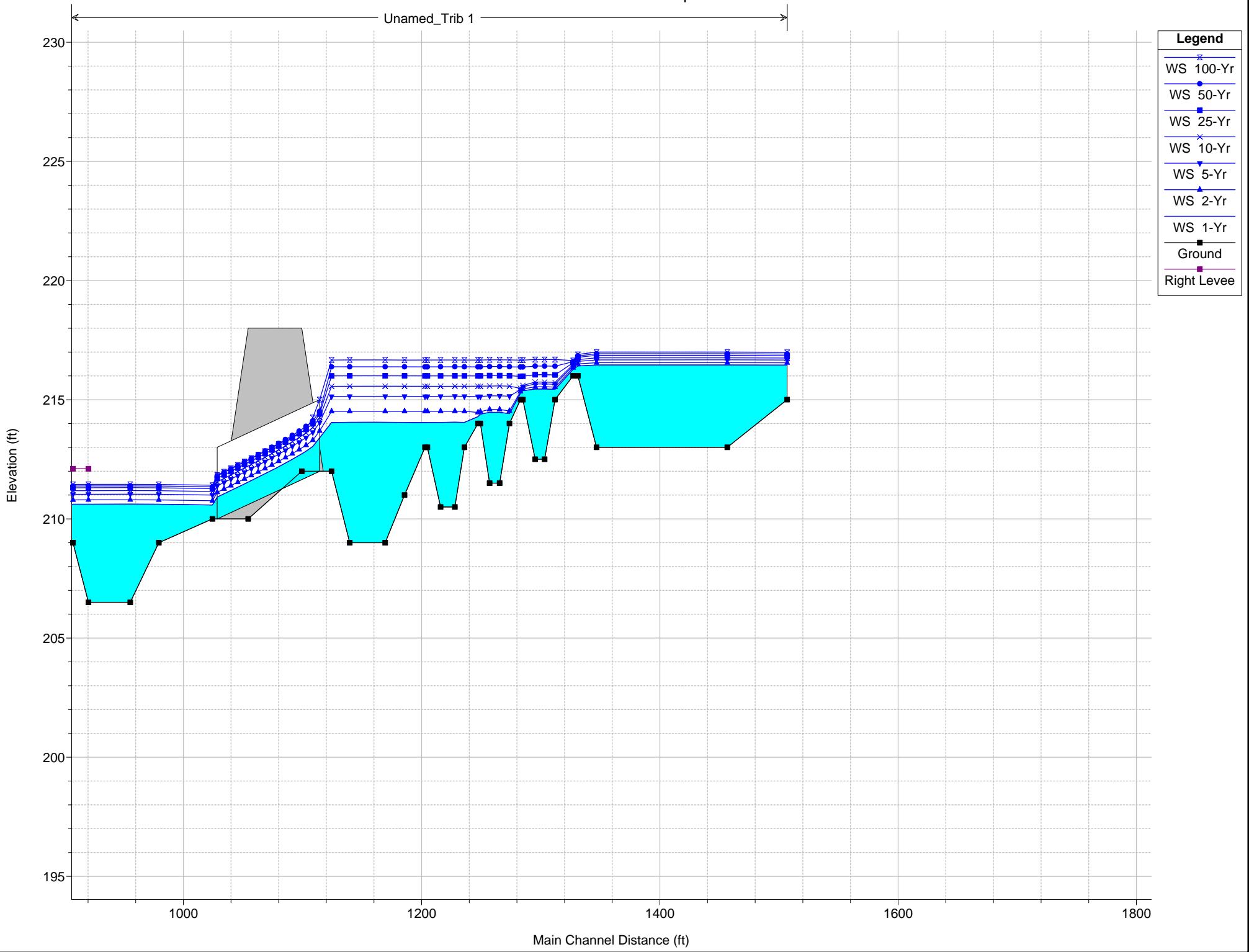
| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|-------|-----------|---------|---------|-----------|-----------|-----------|-----------|------------|----------|-----------|-----------|--------------|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 52 | 1-Yr | 16.90 | 186.59 | 187.12 | 187.12 | 187.27 | 0.084217 | 3.25 | 5.74 | 19.42 | 0.92 |



Proposed HEC-RAS Layout



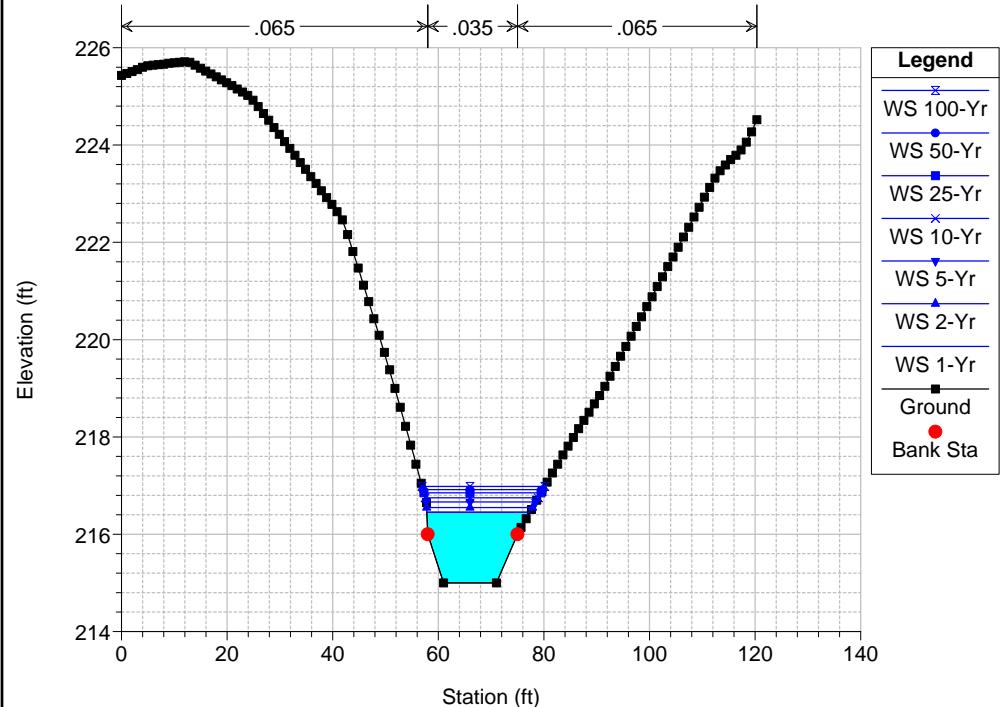
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013



1 in Horiz. = 100 ft 1 in Vert. = 5 ft

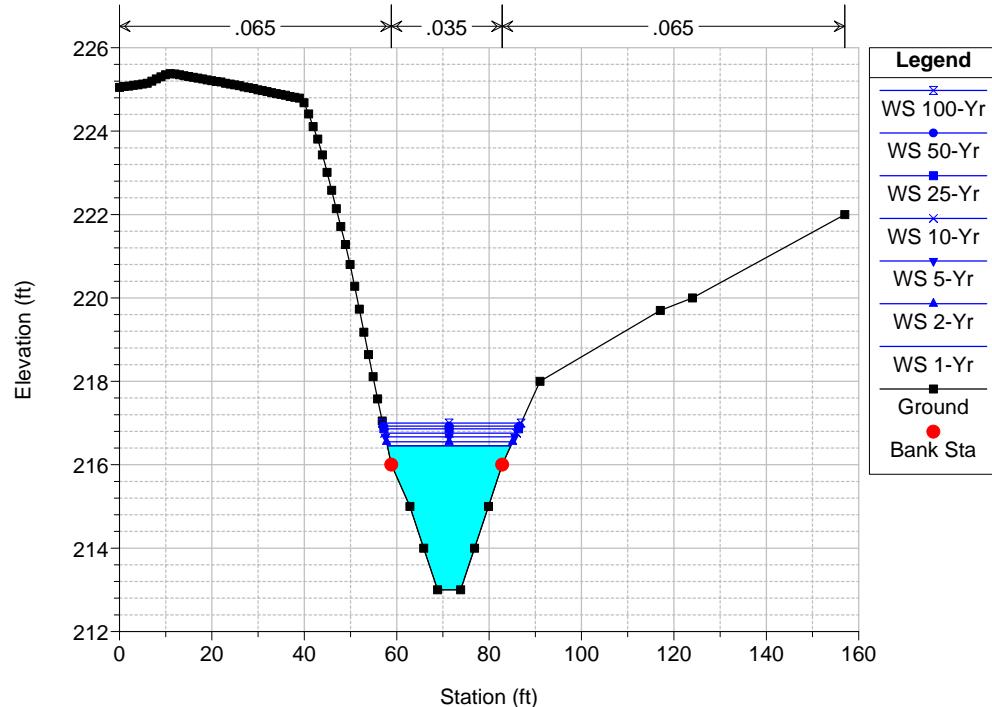
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 1587



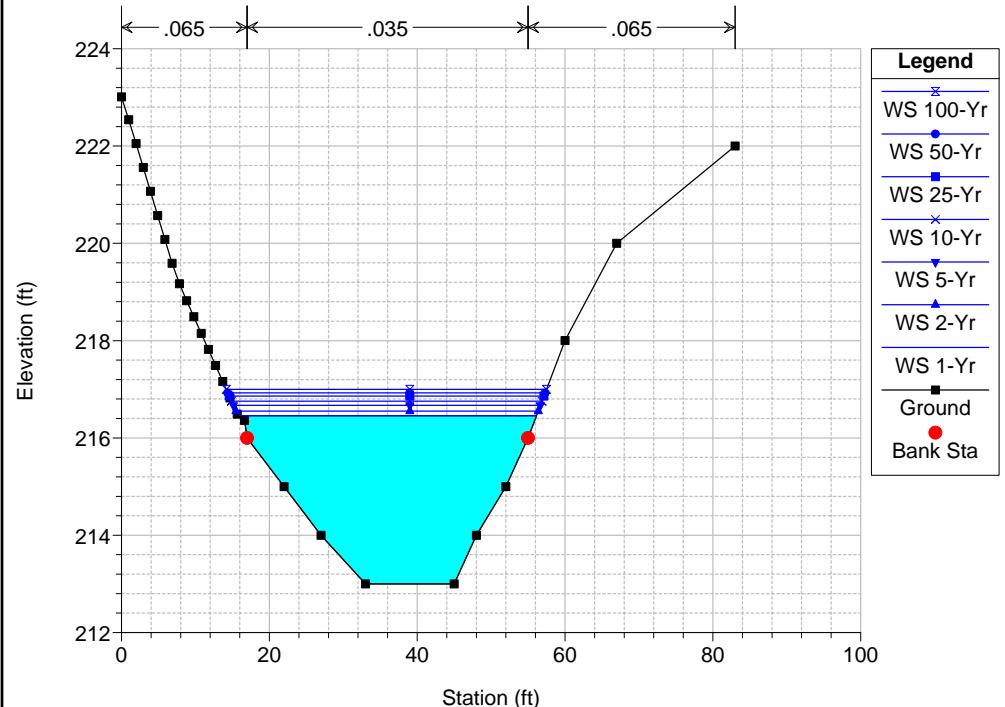
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 1537



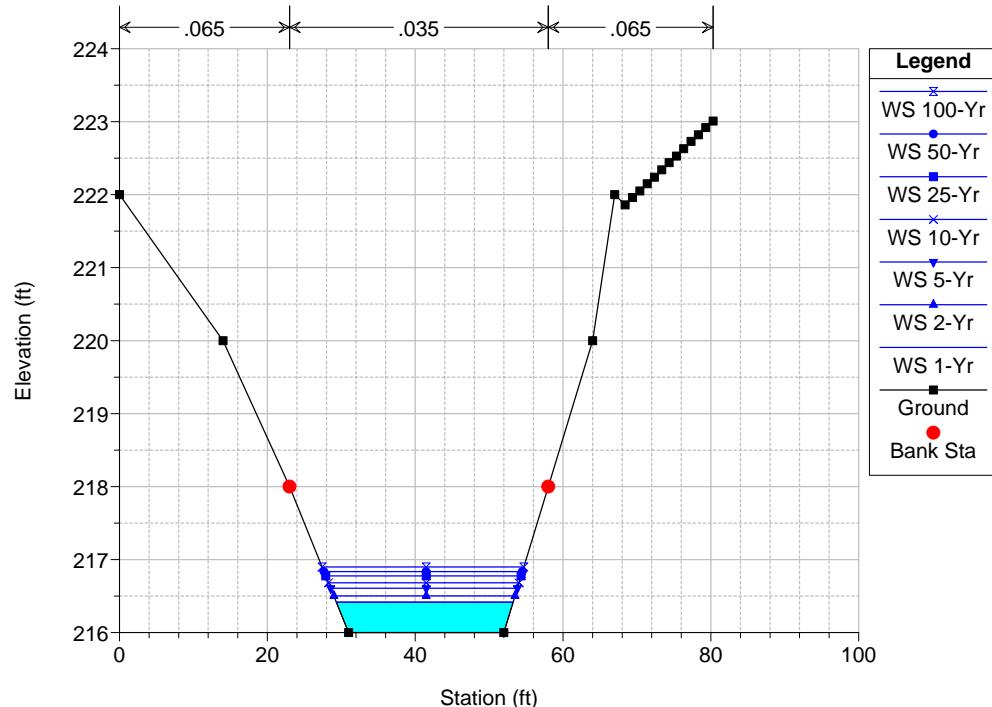
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 1427

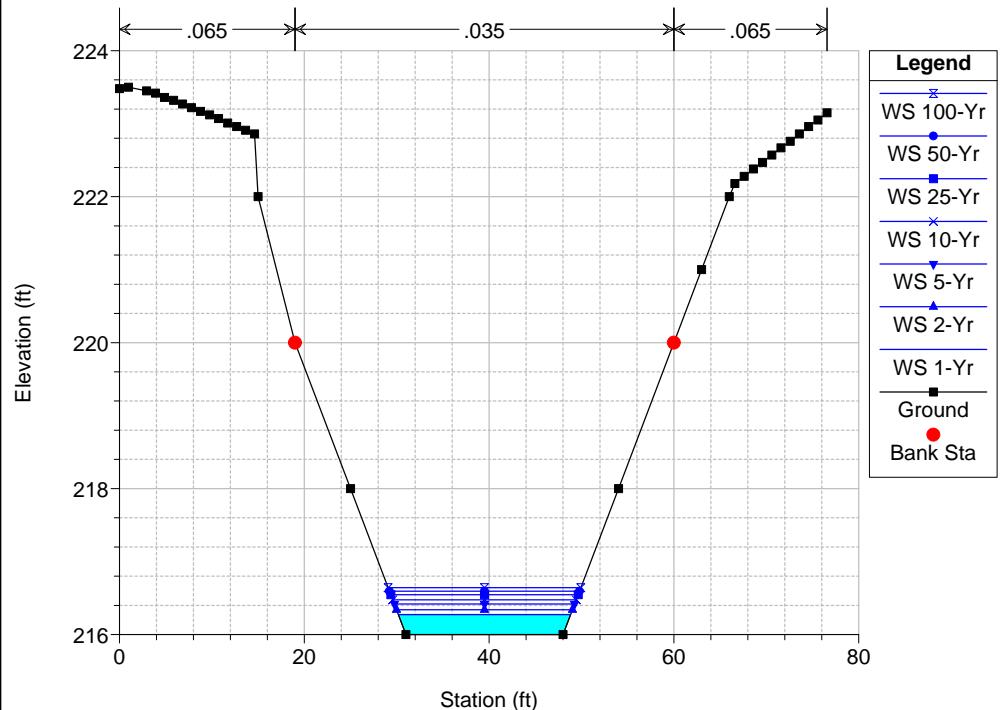


Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

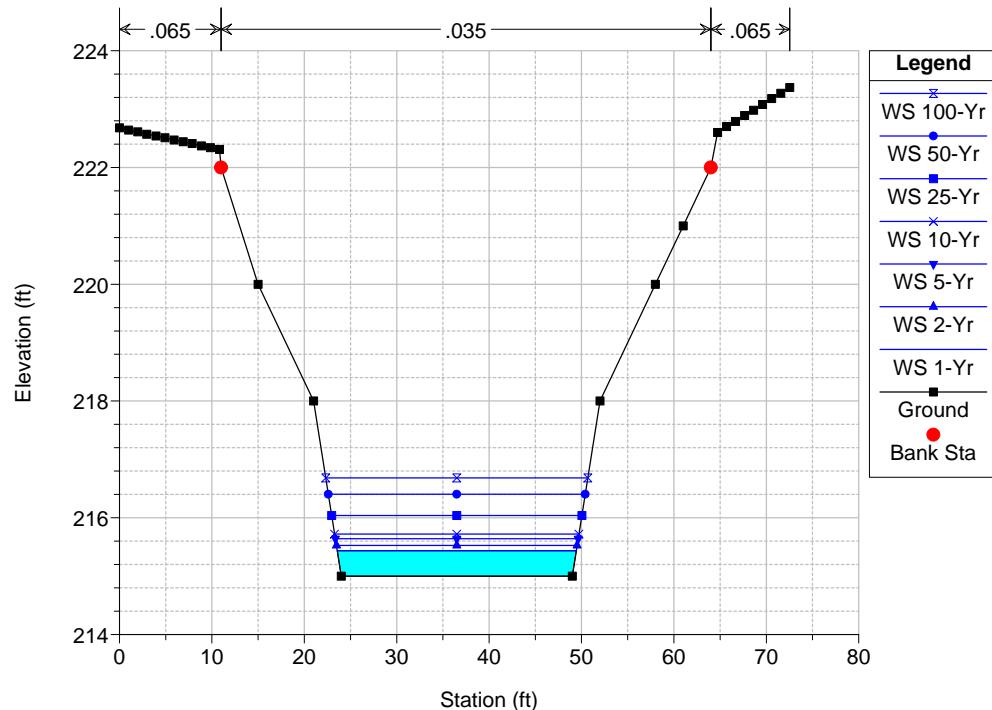
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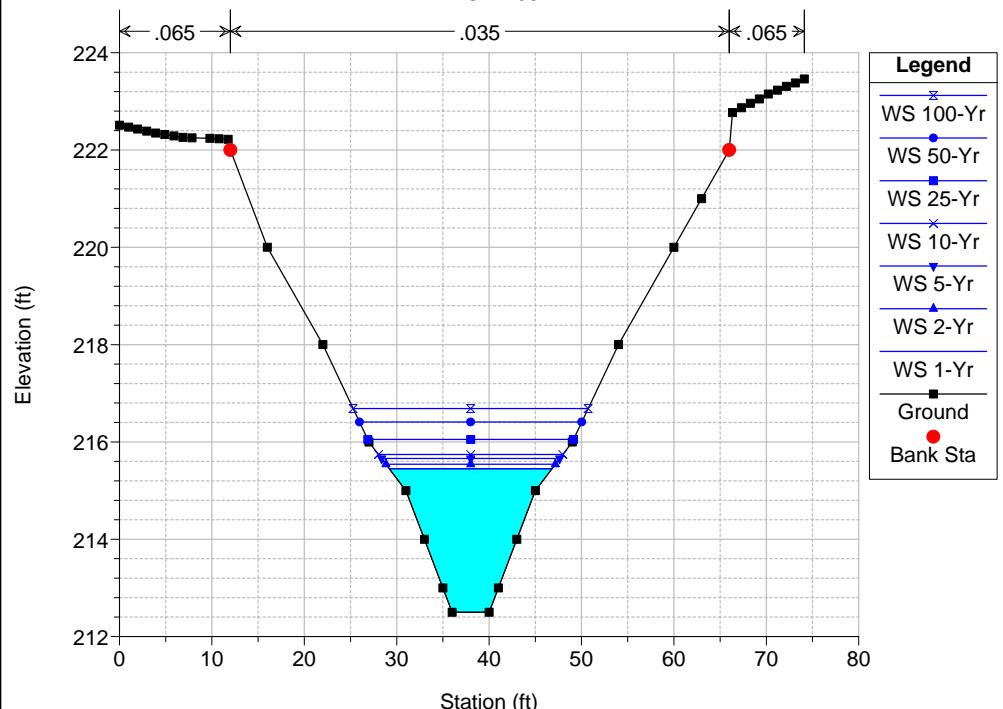
RS = 1408



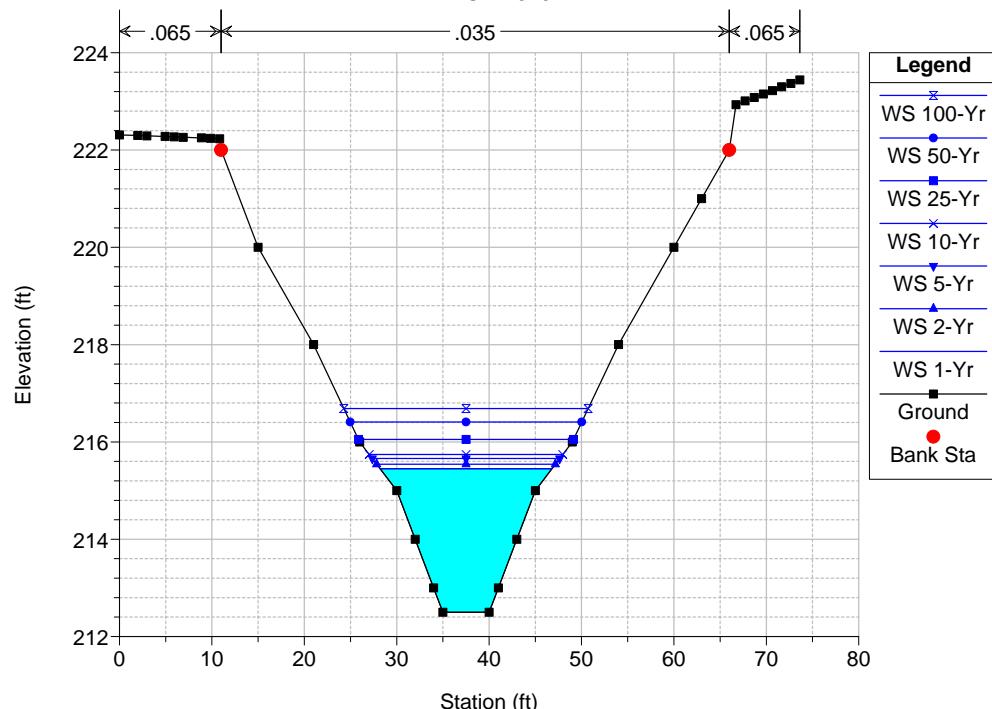
RS = 1392



RS = 1384

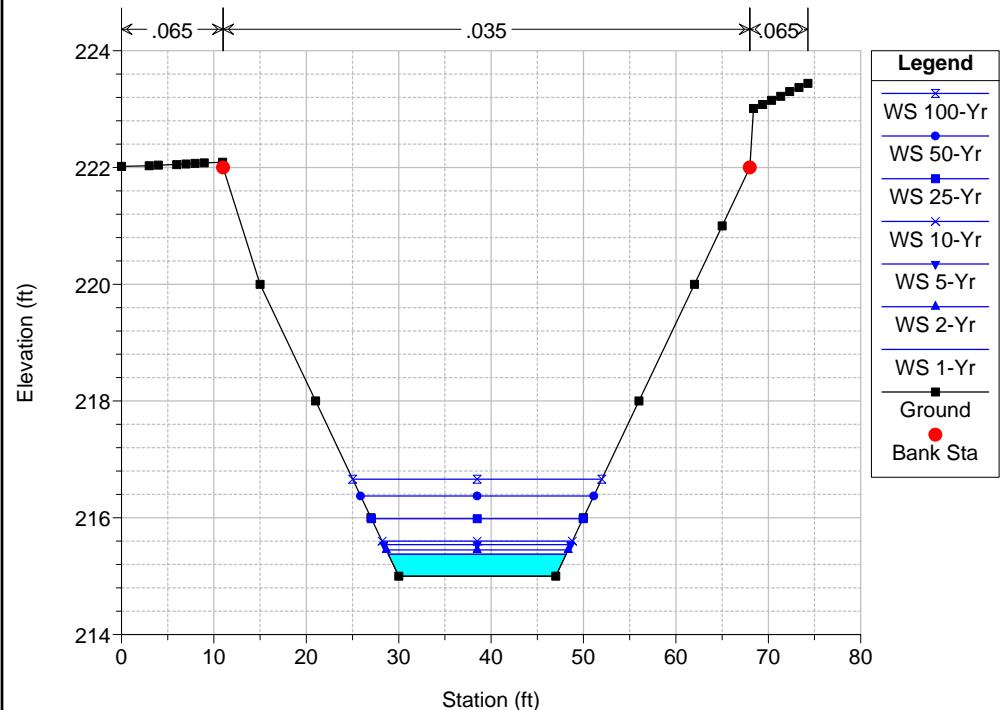


RS = 1376



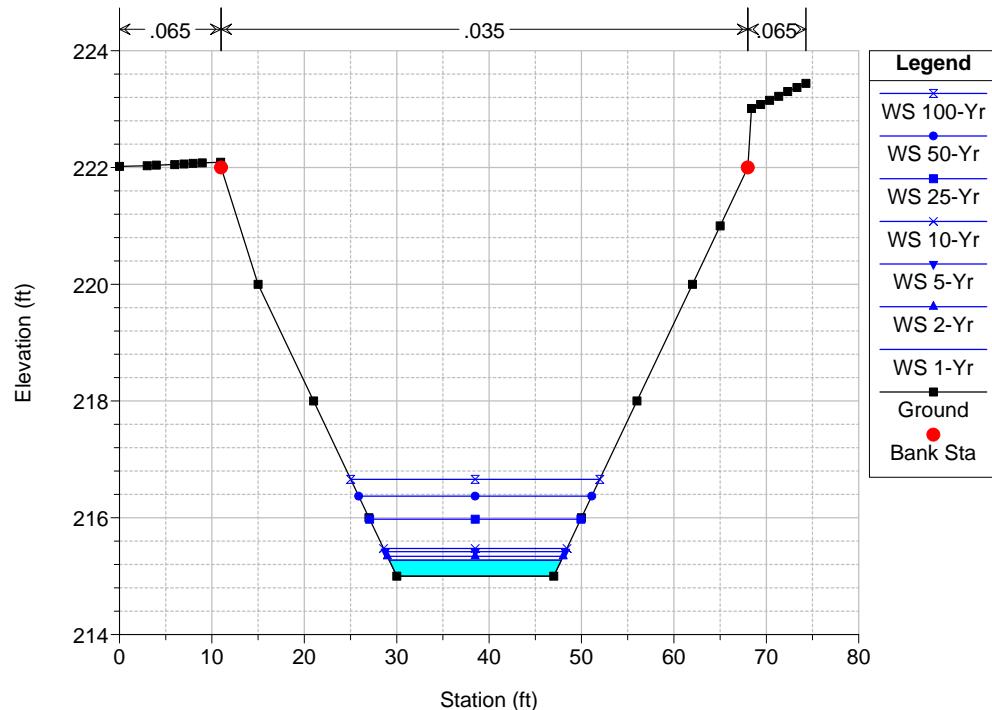
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 1366



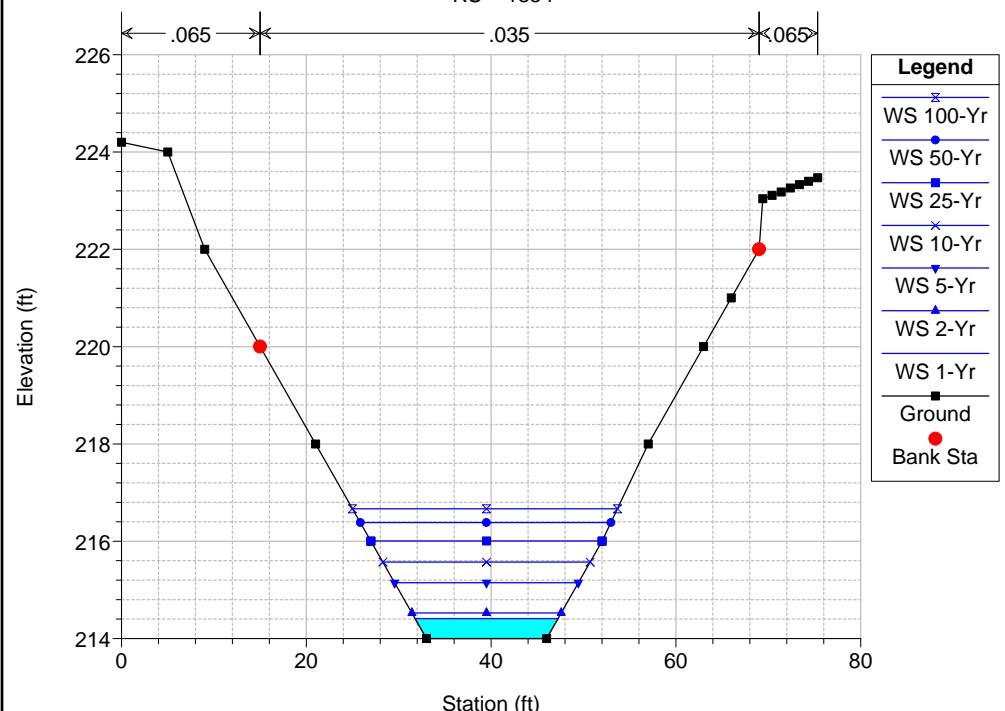
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 1364



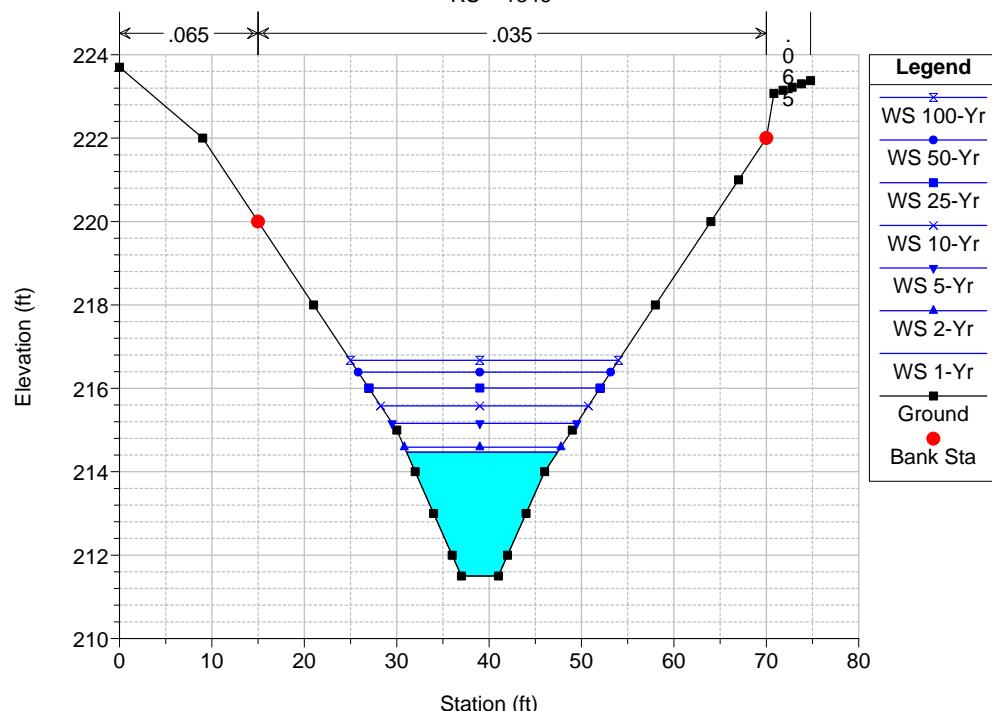
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 1354

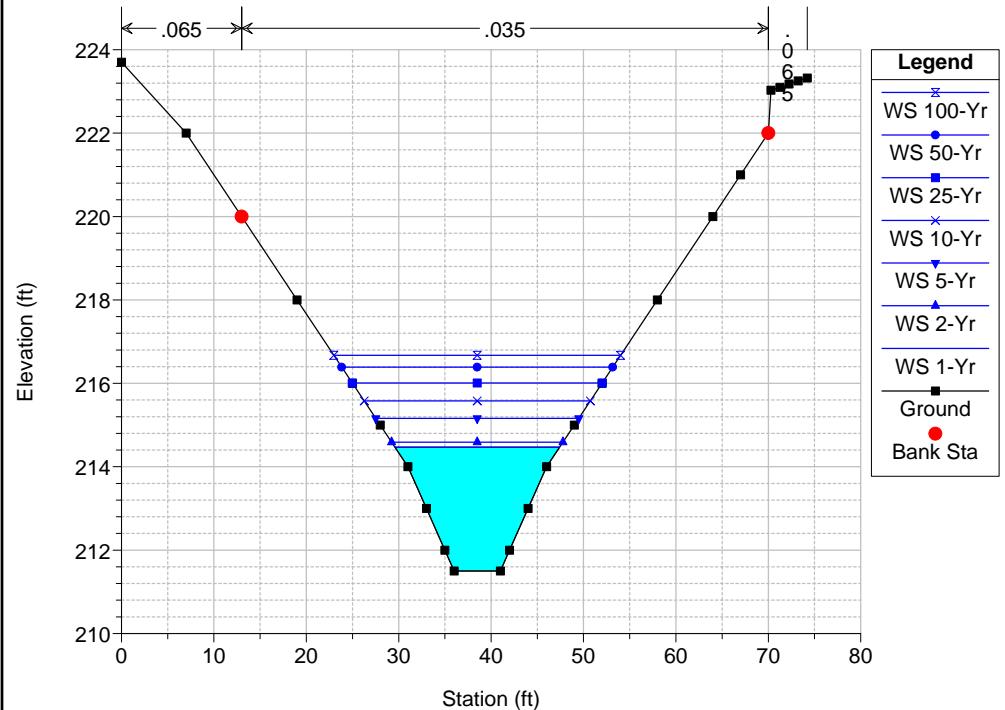


Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

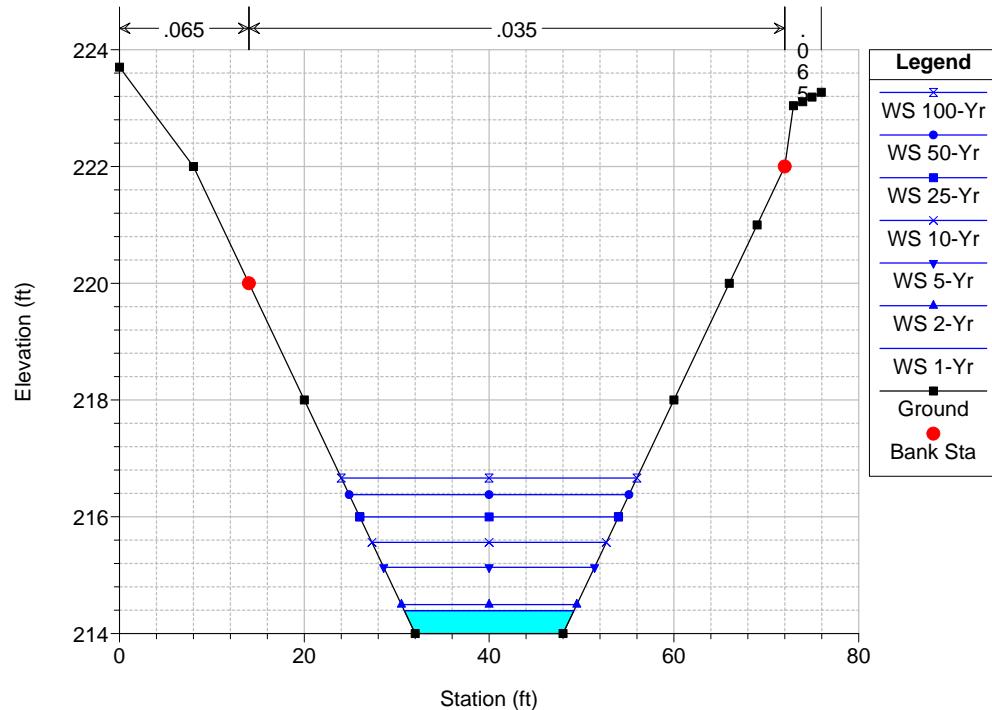
RS = 1346



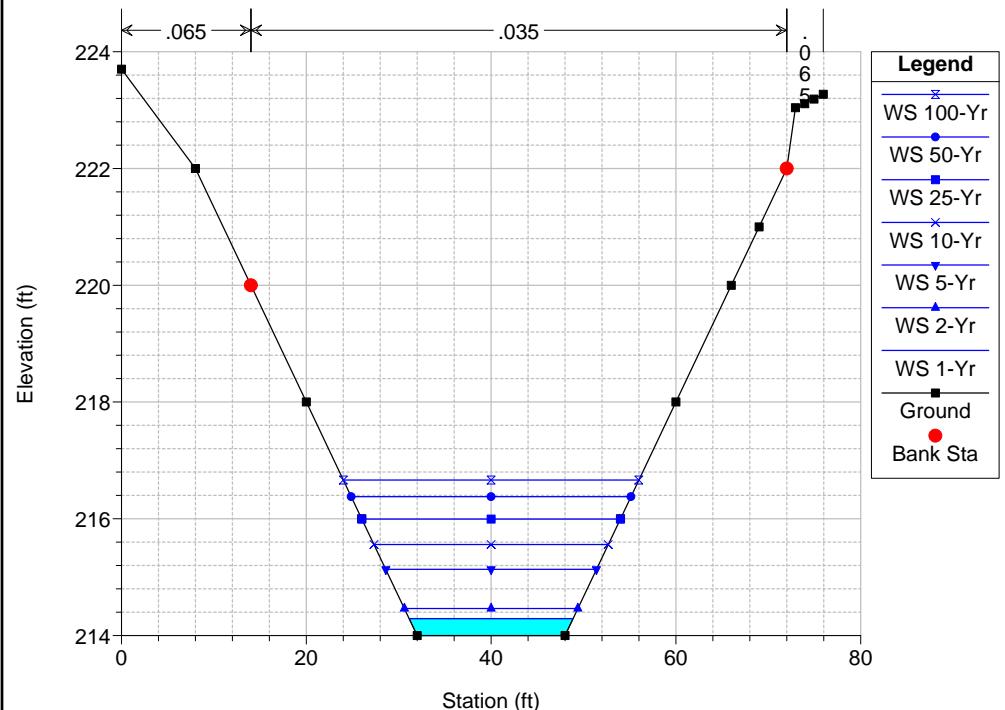
RS = 1338



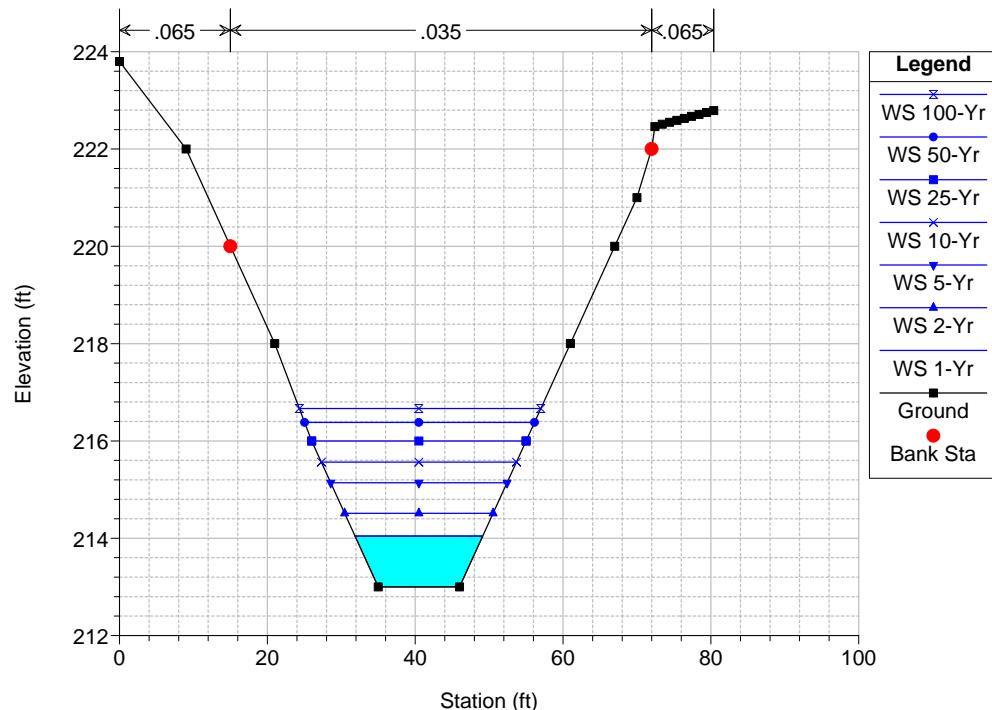
RS = 1330



RS = 1328

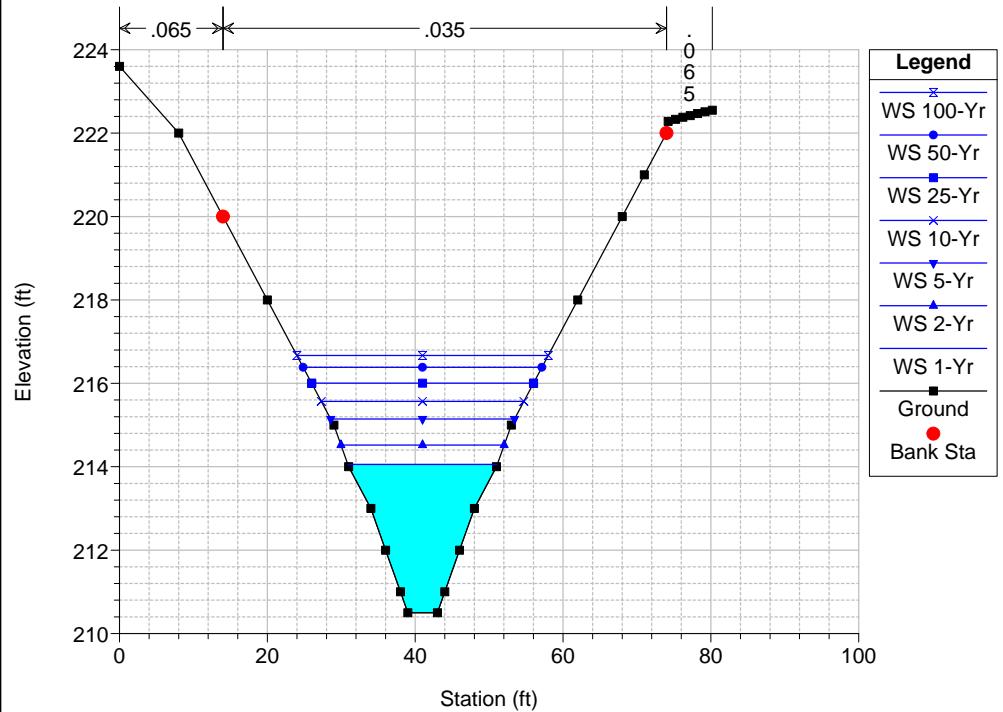


RS = 1316



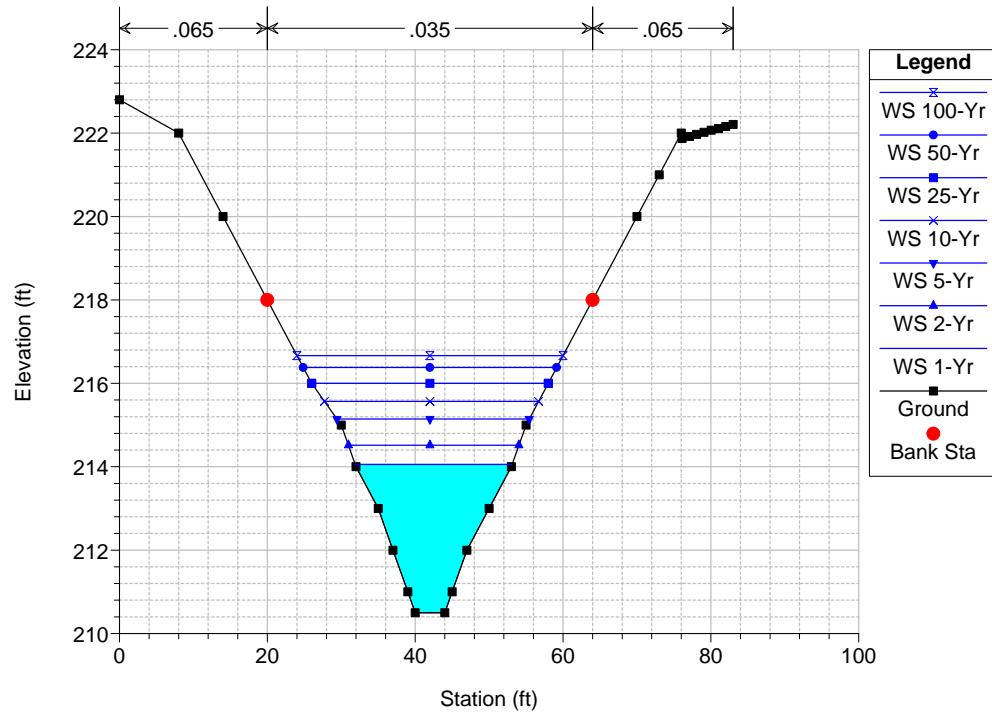
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 1308



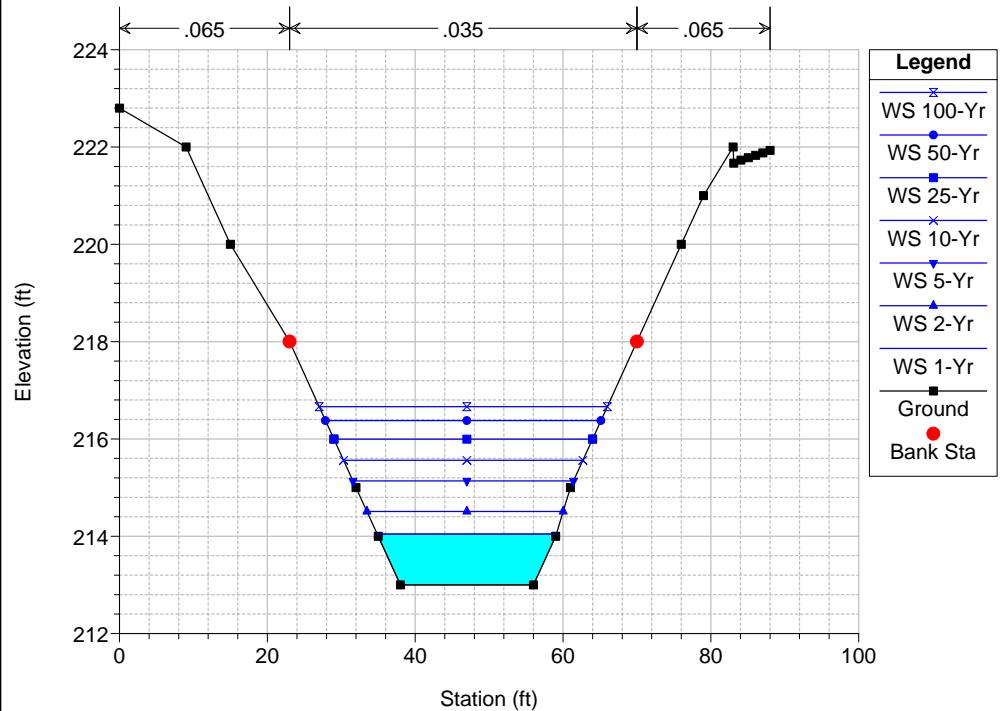
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 1296



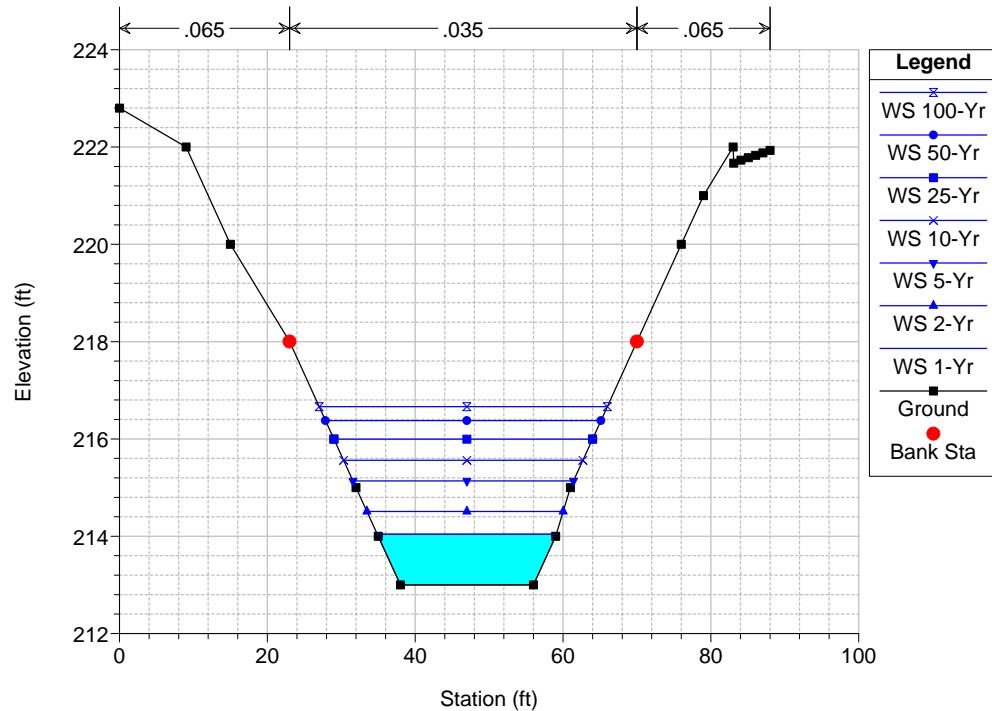
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 1285



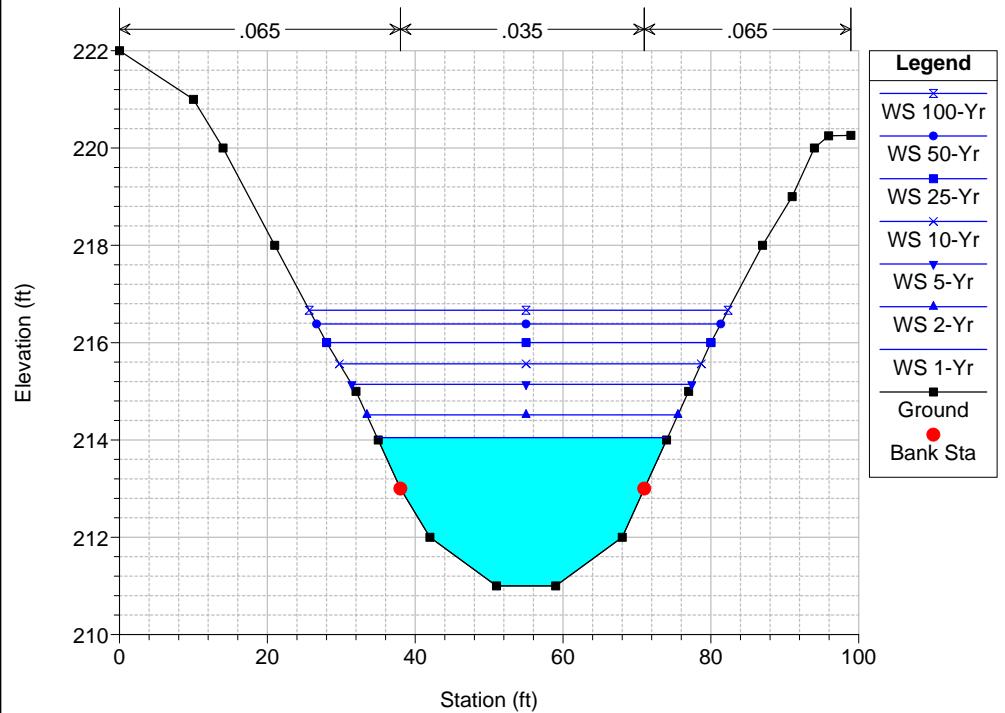
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 1283



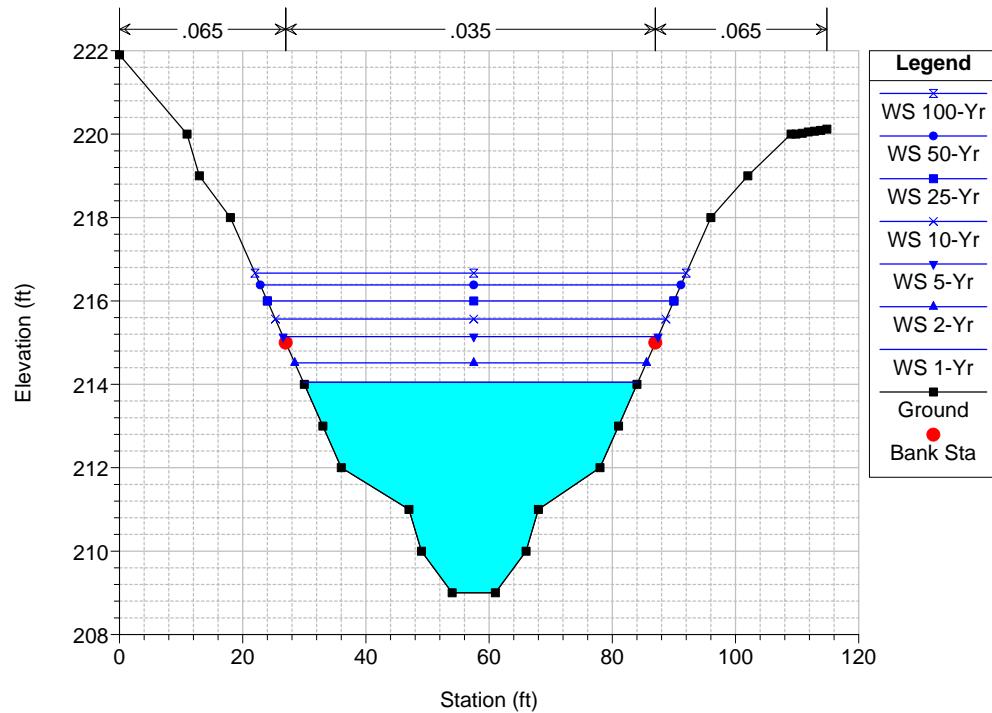
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 1266



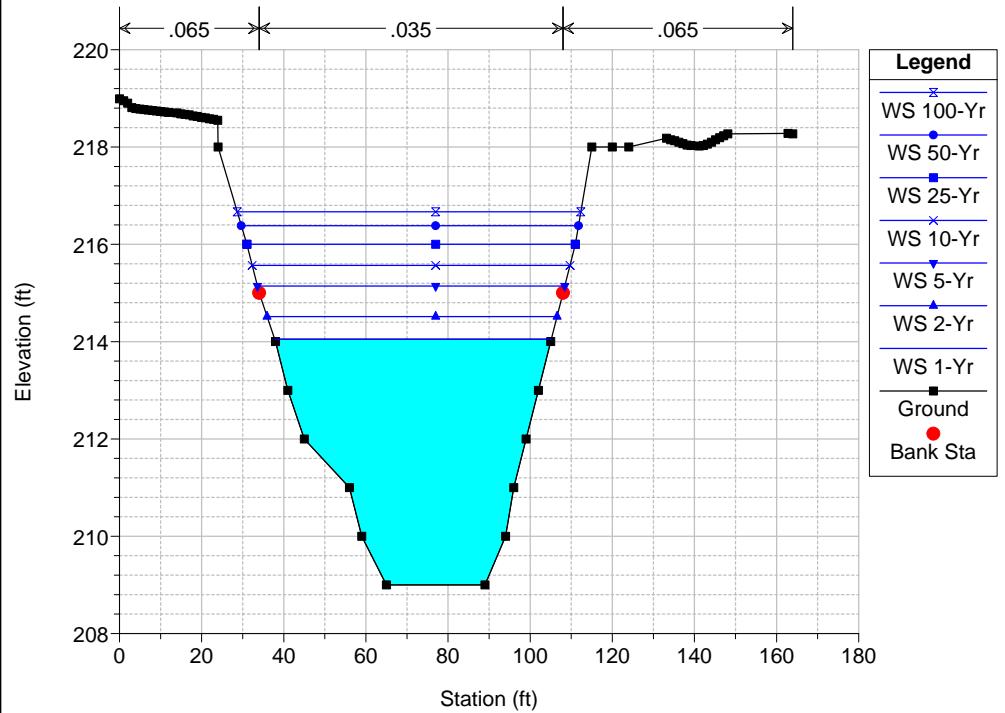
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 1250



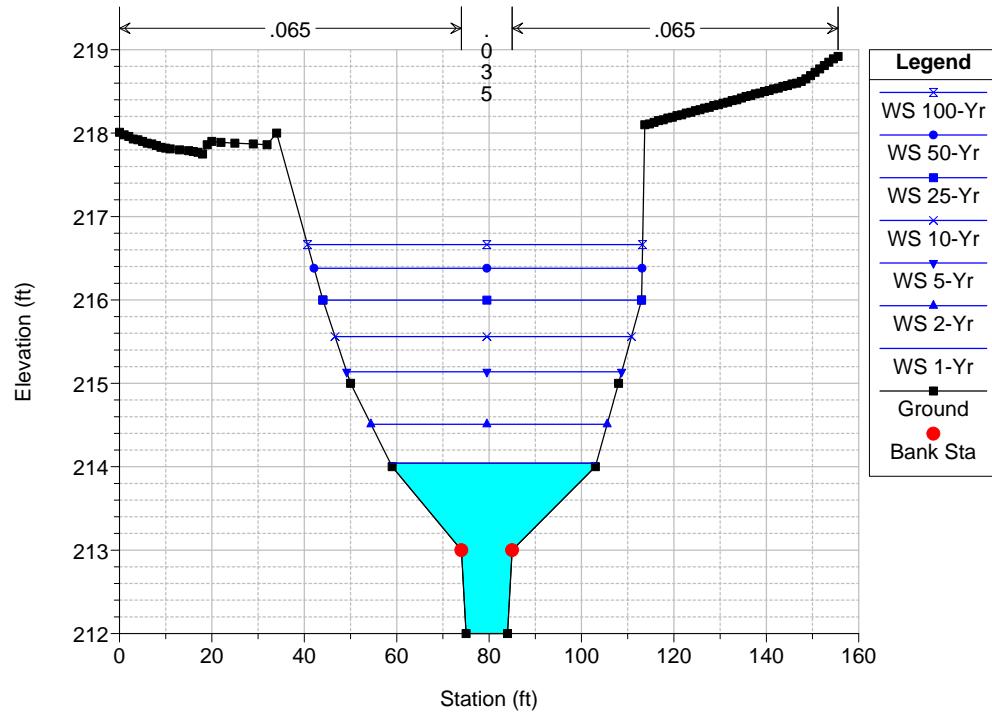
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 1220

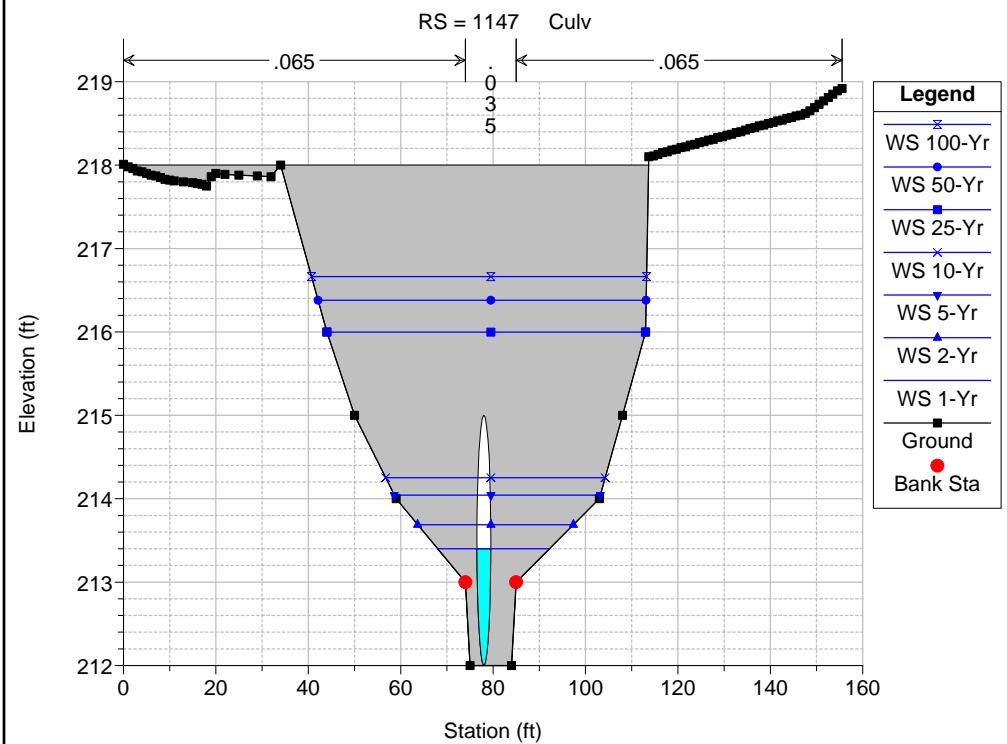


Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

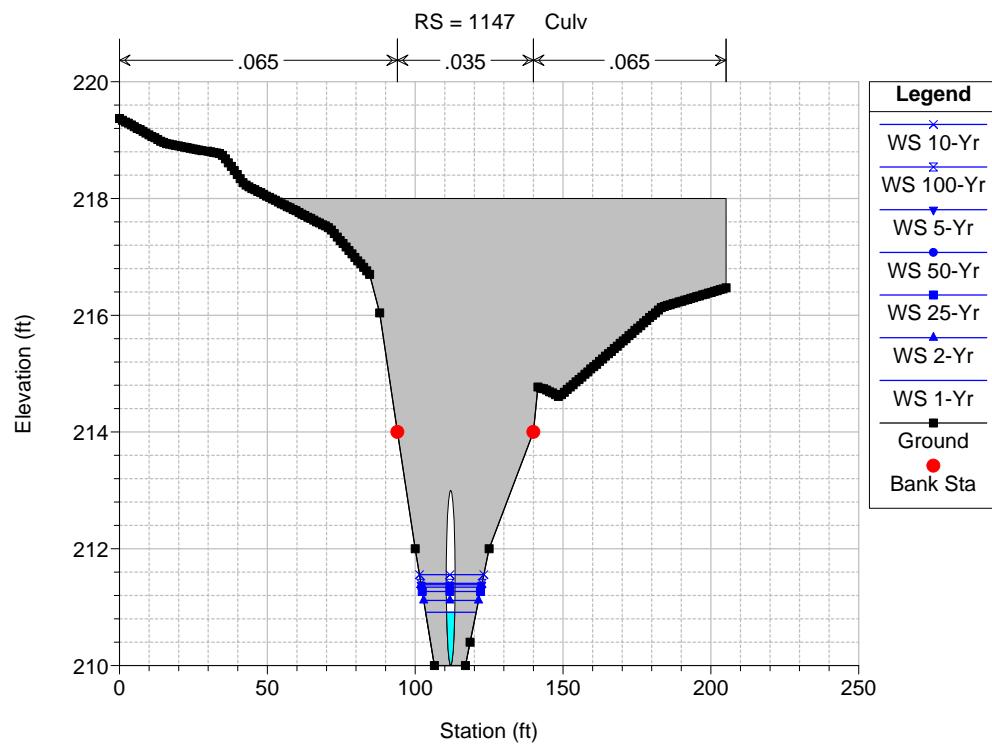
RS = 1205



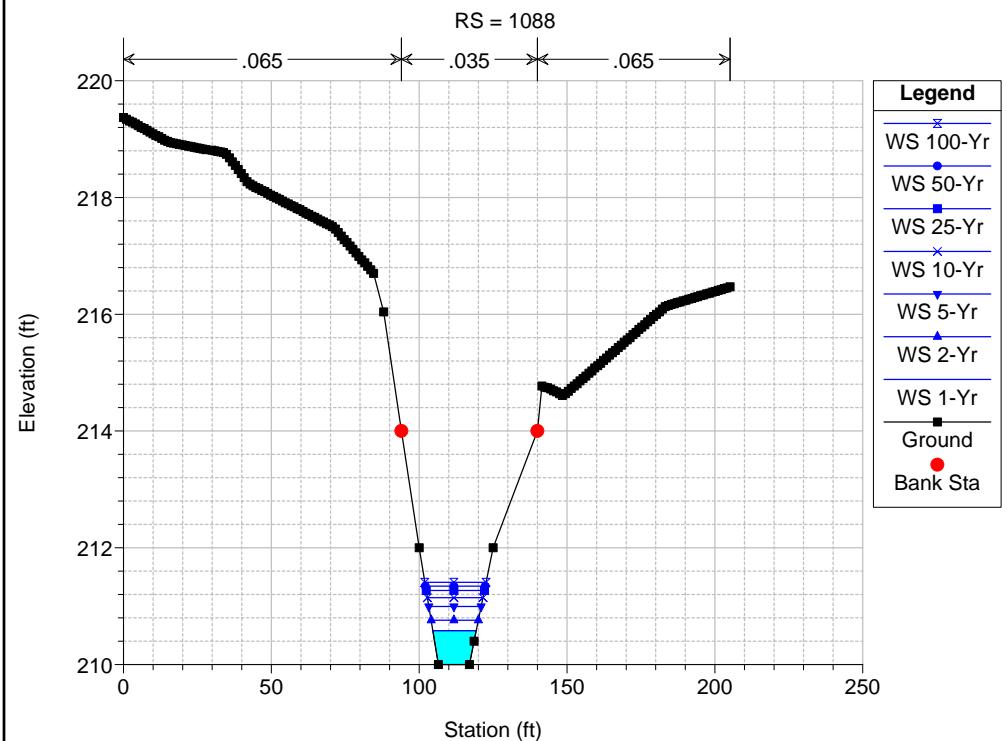
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013



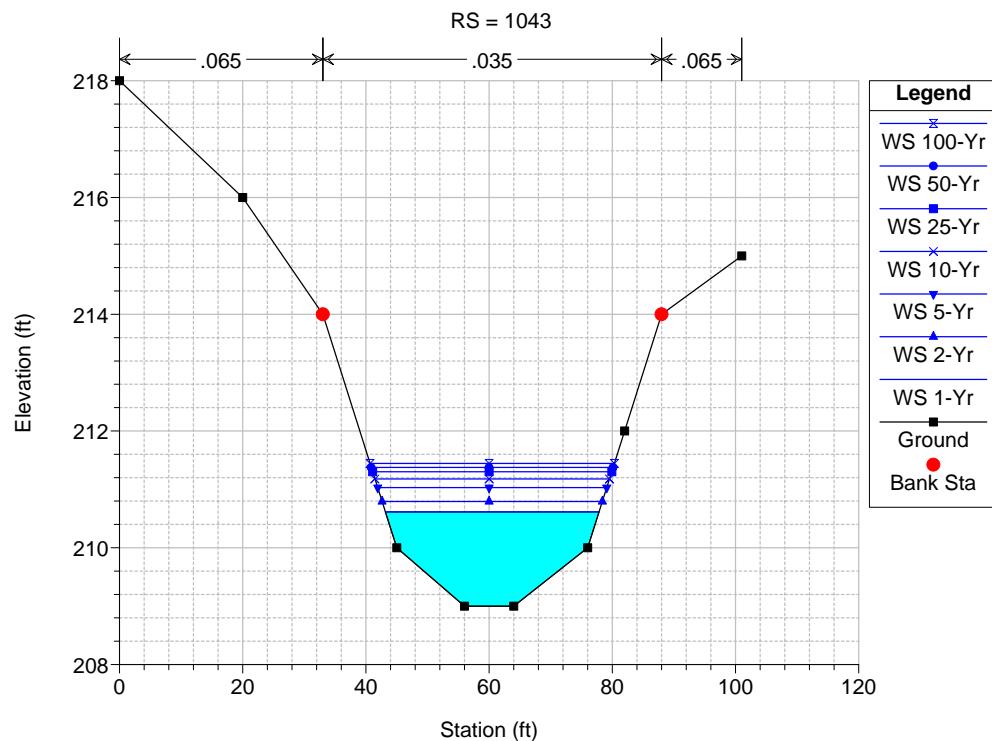
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013



Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

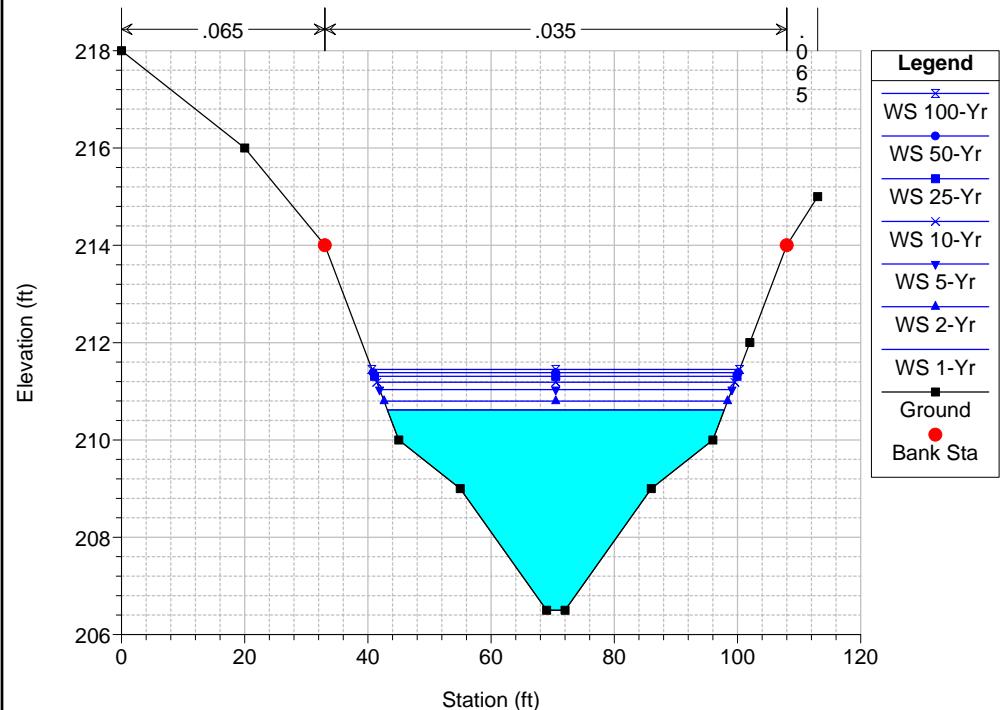


Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013



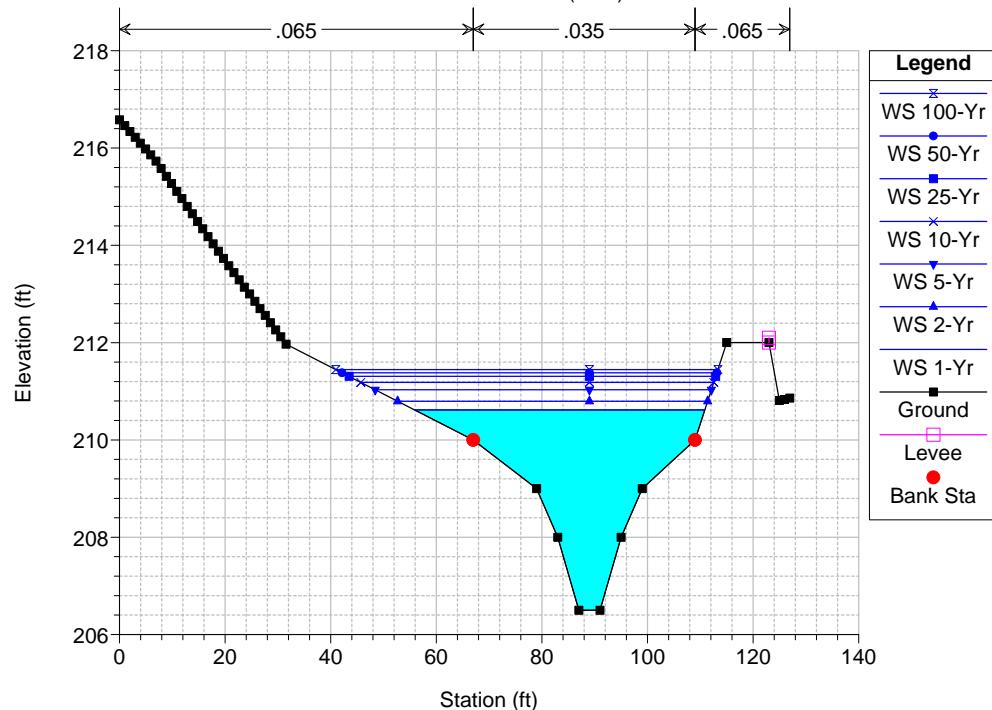
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 1019



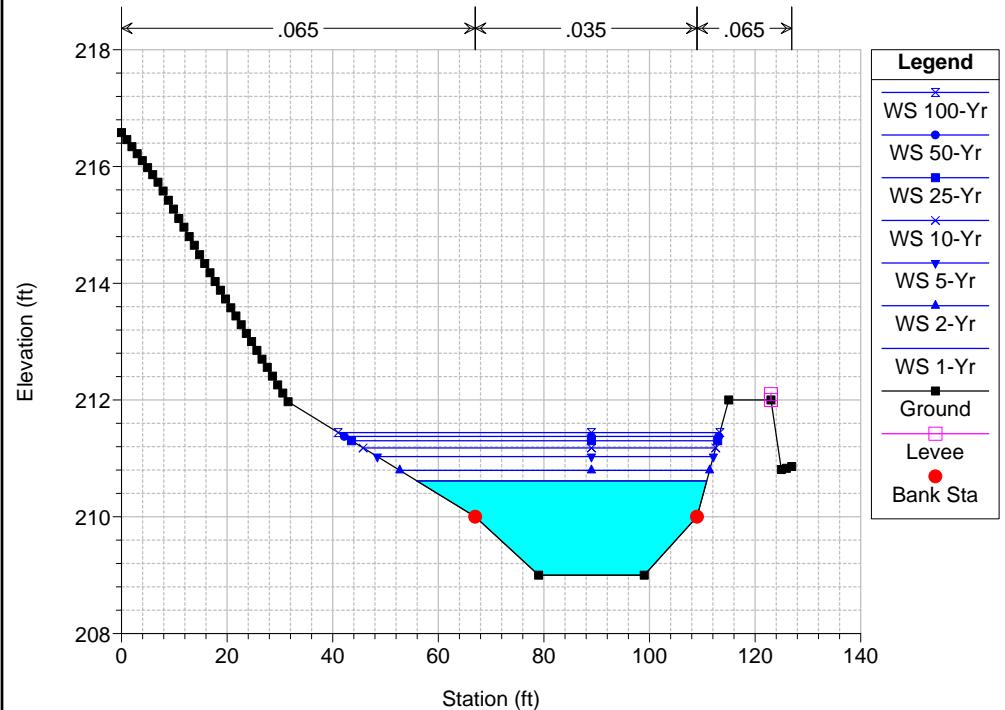
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 952 6+30 (Pool)



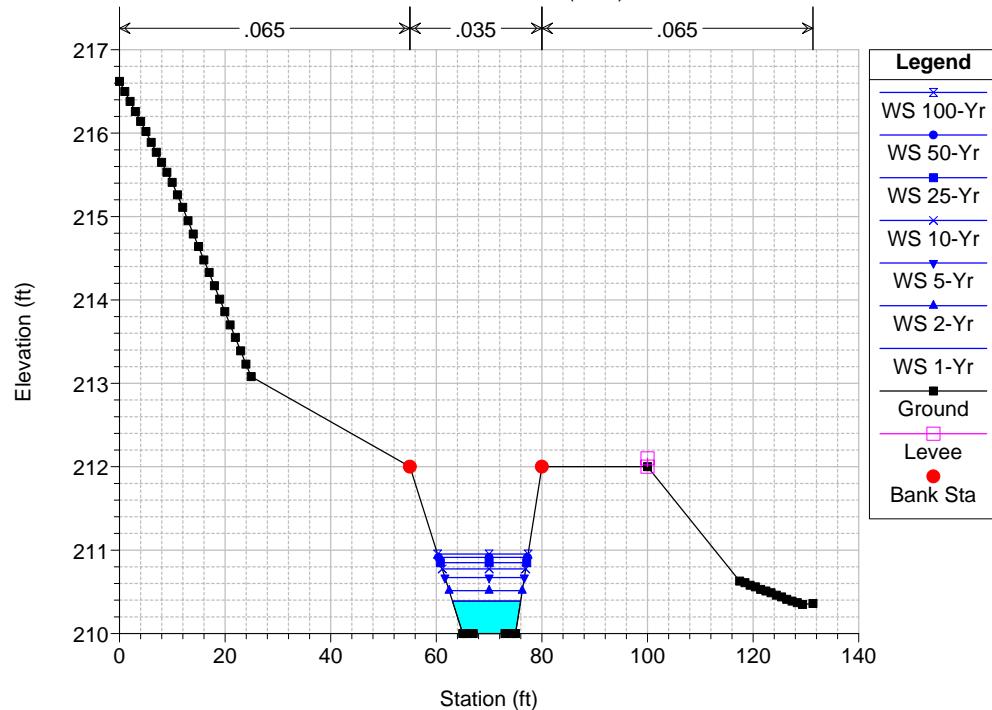
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 939

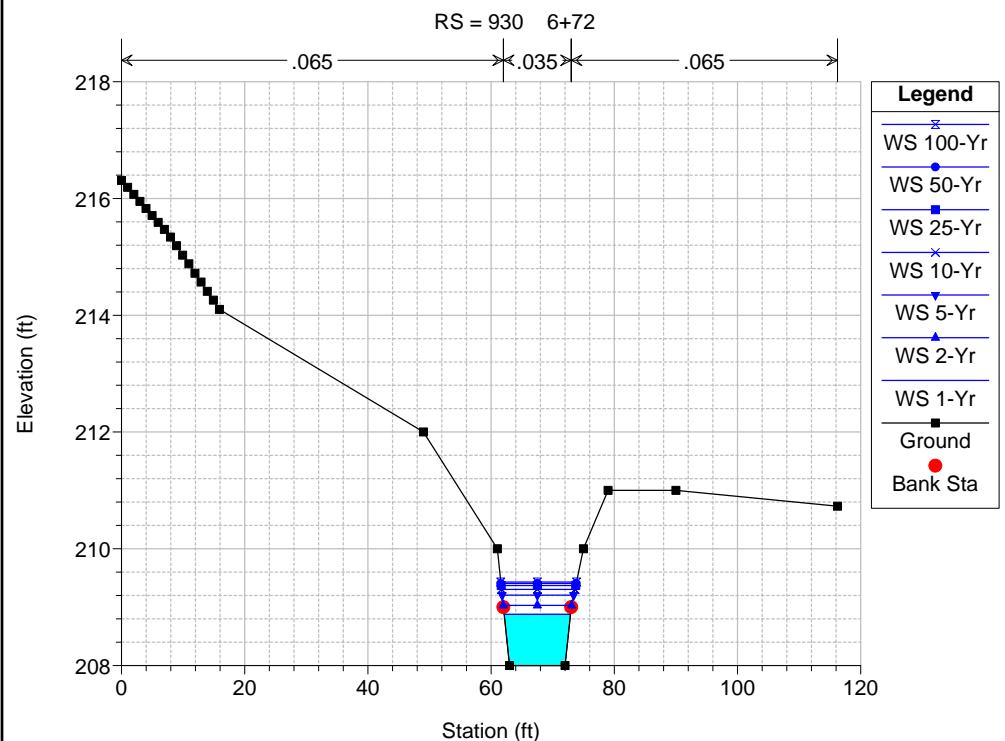


Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

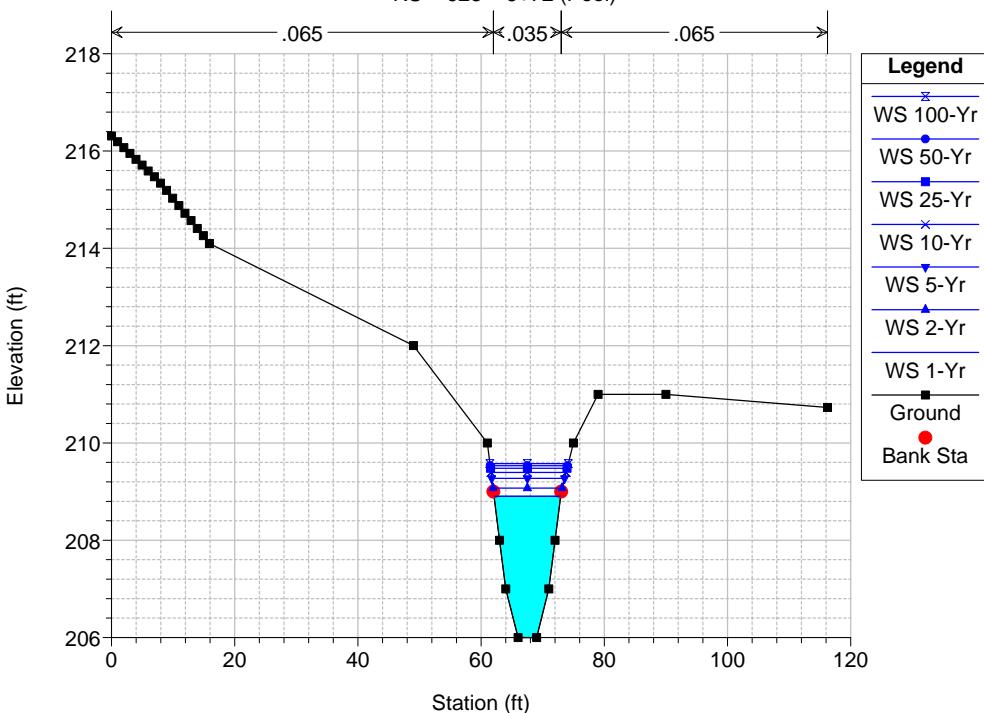
RS = 932 6+68 (Weir)



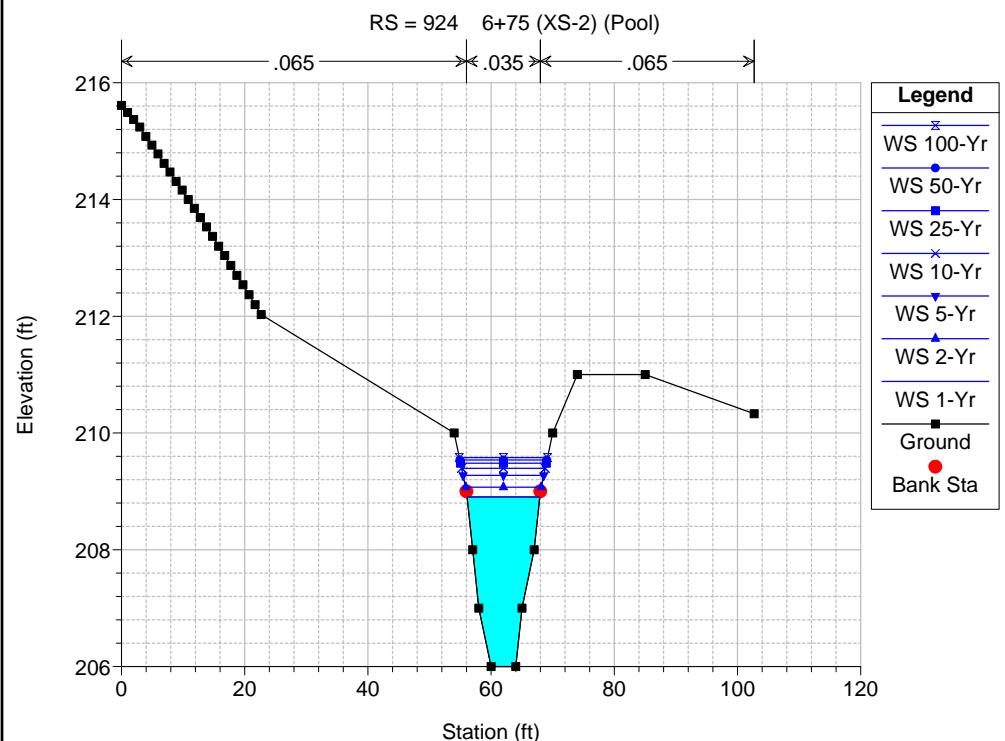
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013



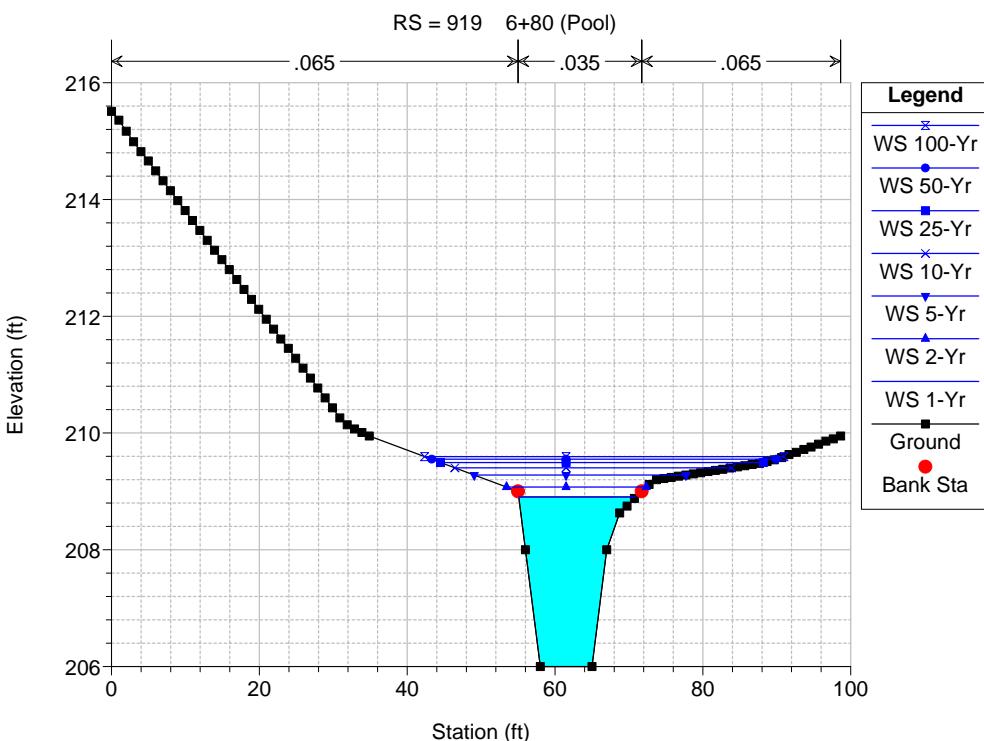
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013



Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

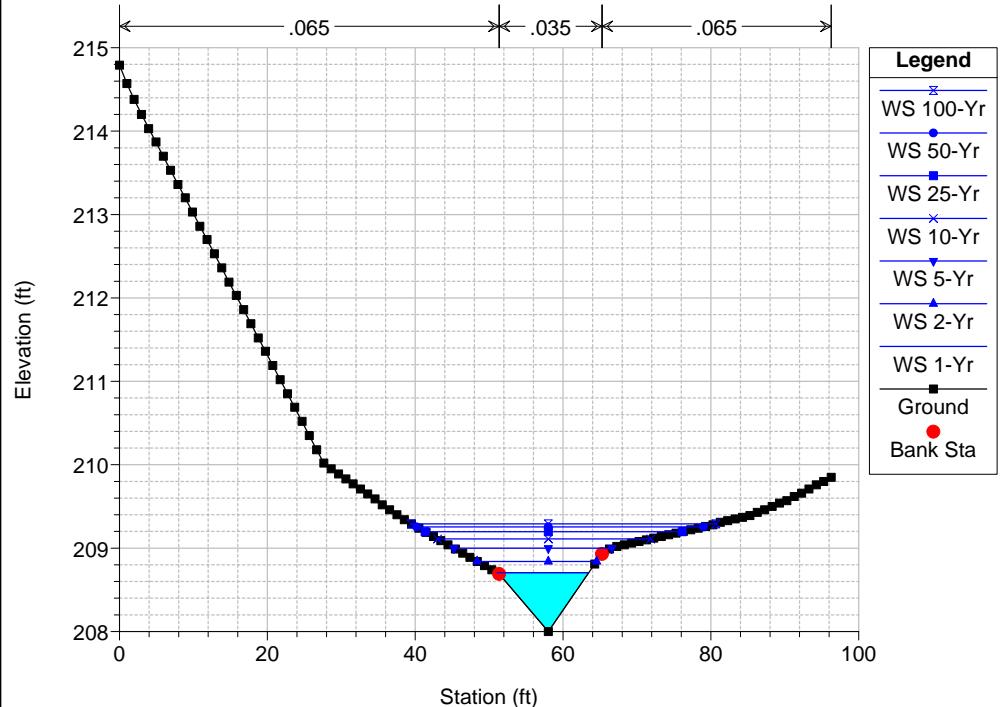


Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013



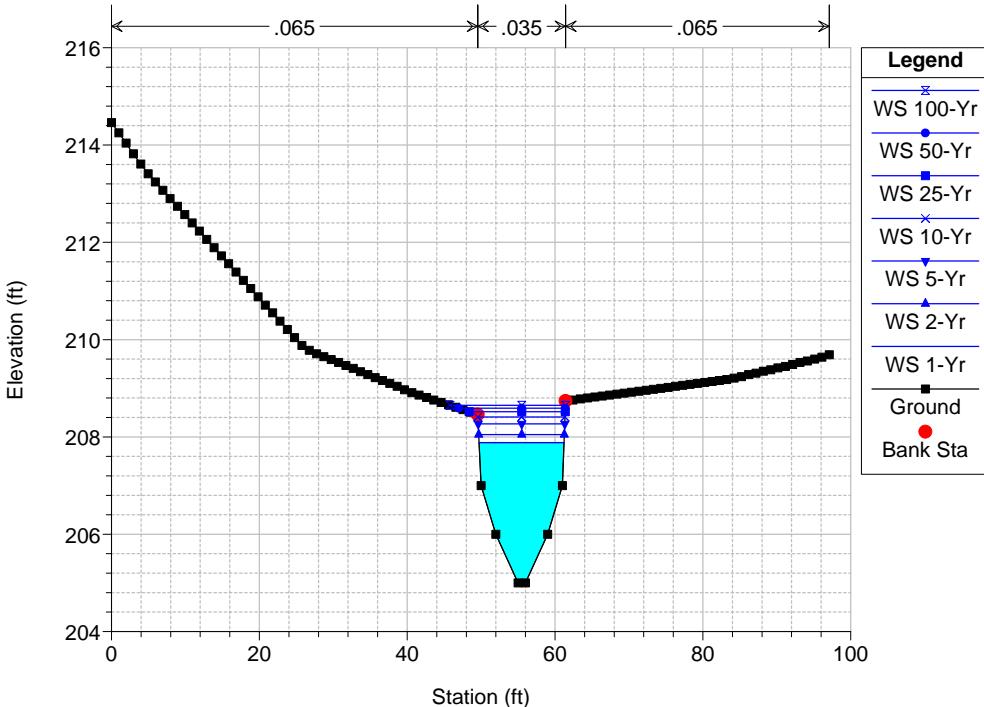
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 916 6+84 (XS-3) (Step)



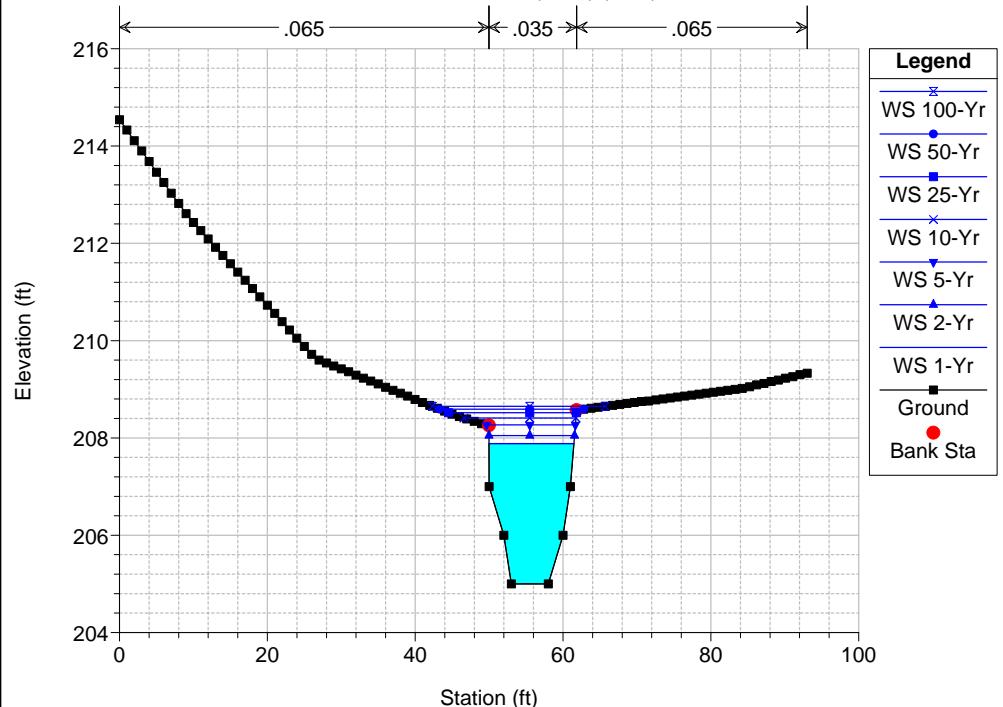
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 911 6+87 (Pool)



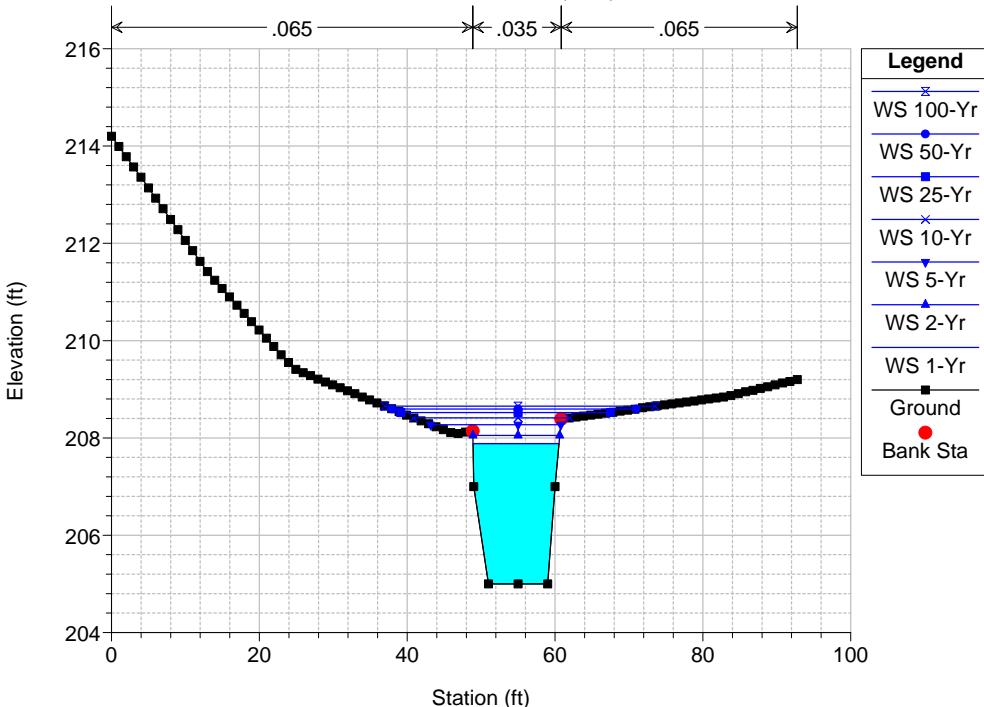
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 907 6+93 (XS-3) (Pool)



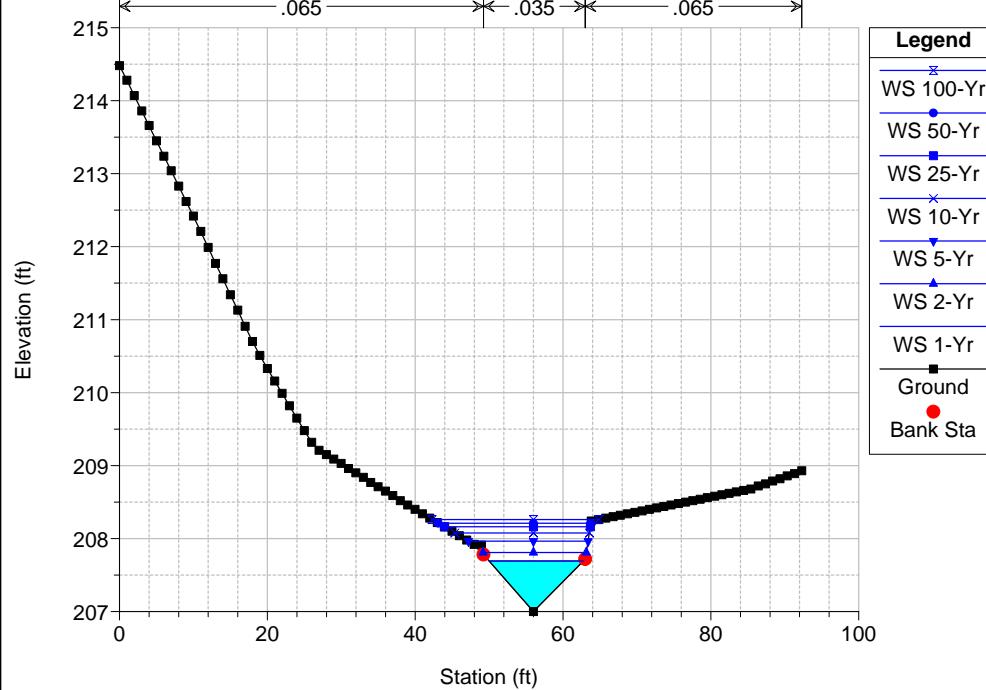
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 902 6+96 (Pool)



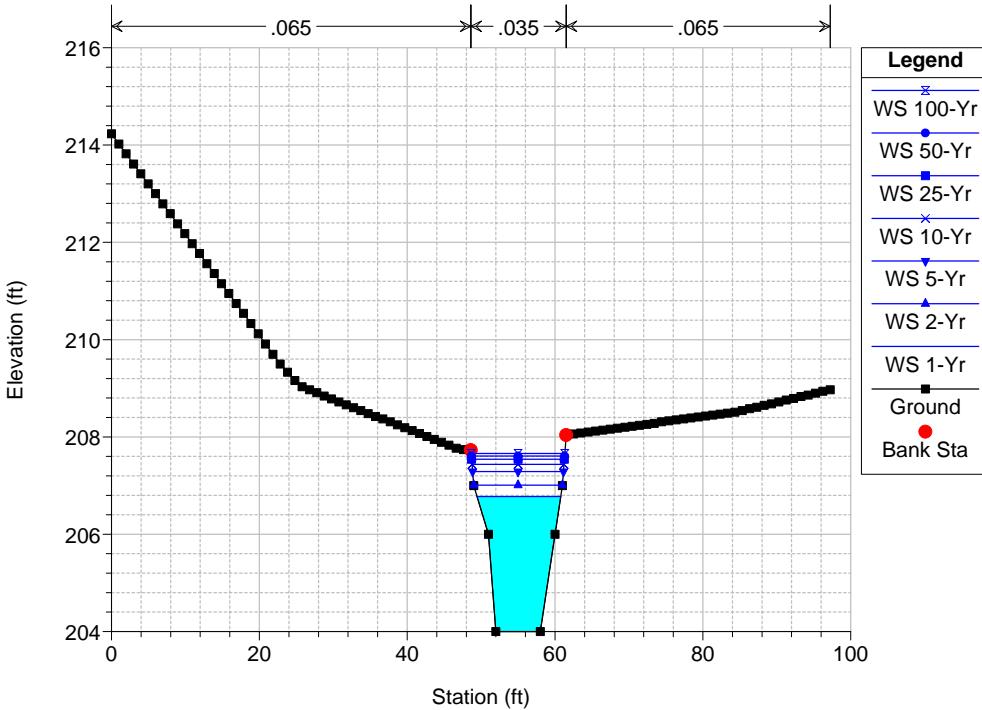
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 897 7+02 (XS-5) (Step)



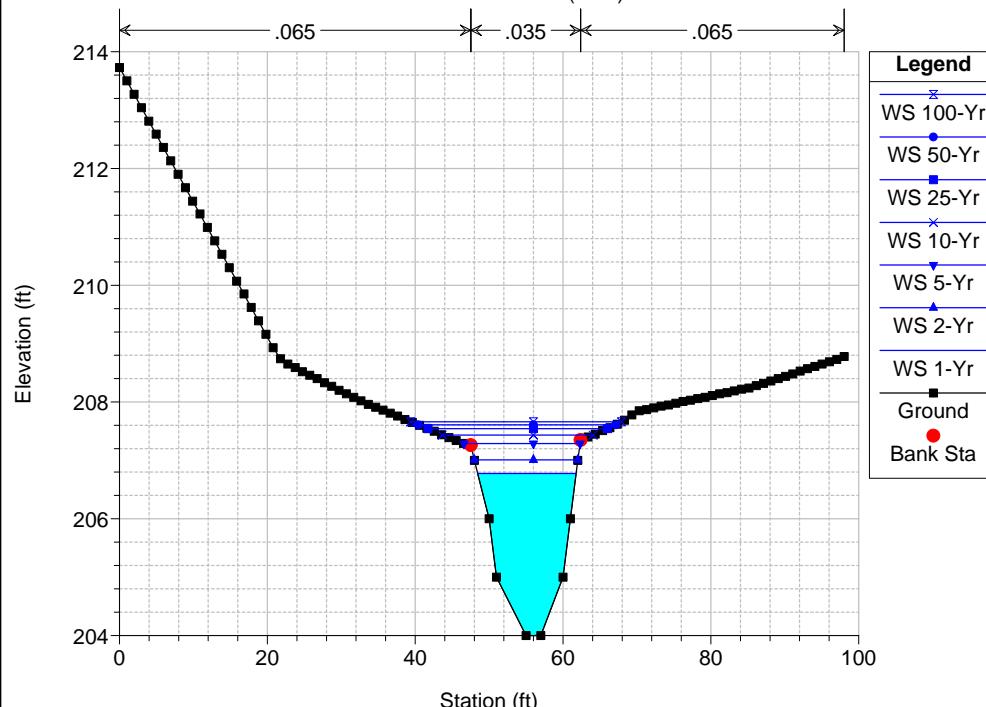
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 893 7+07 (Pool)



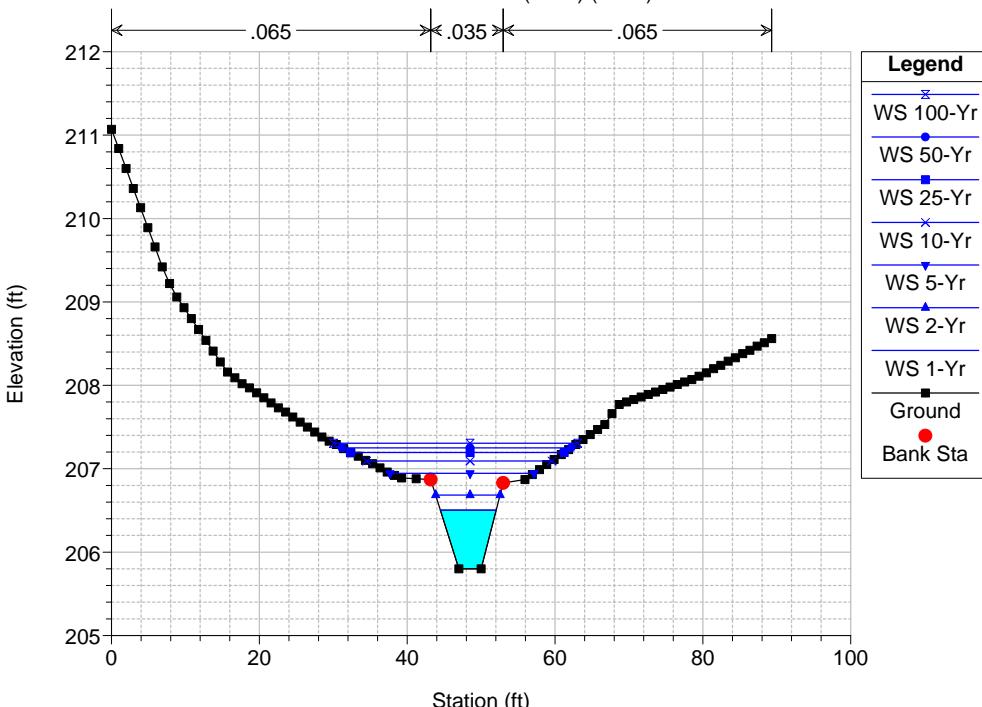
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 881 7+19 (Pool)



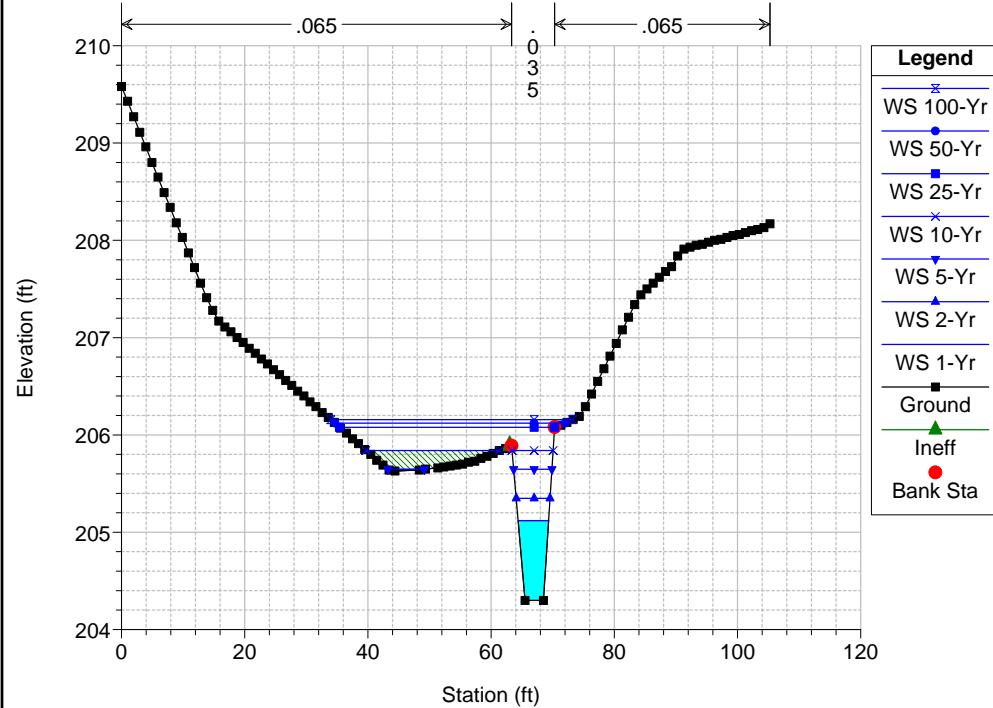
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 873 7+27 (XS-6) (Riffle)



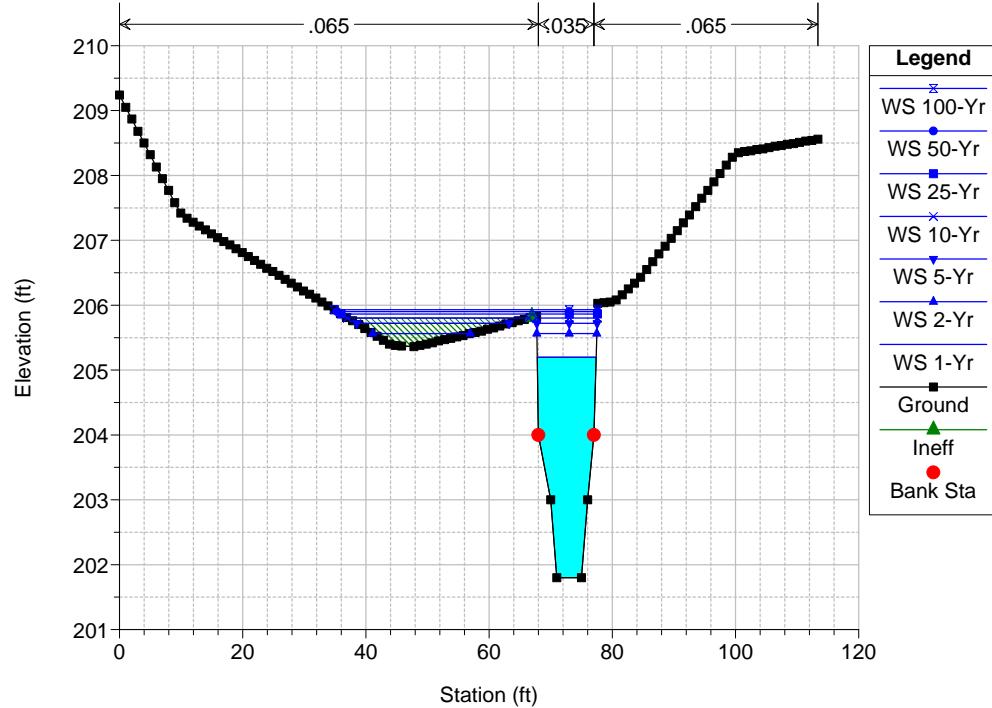
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 842 7+69 (Riffle)



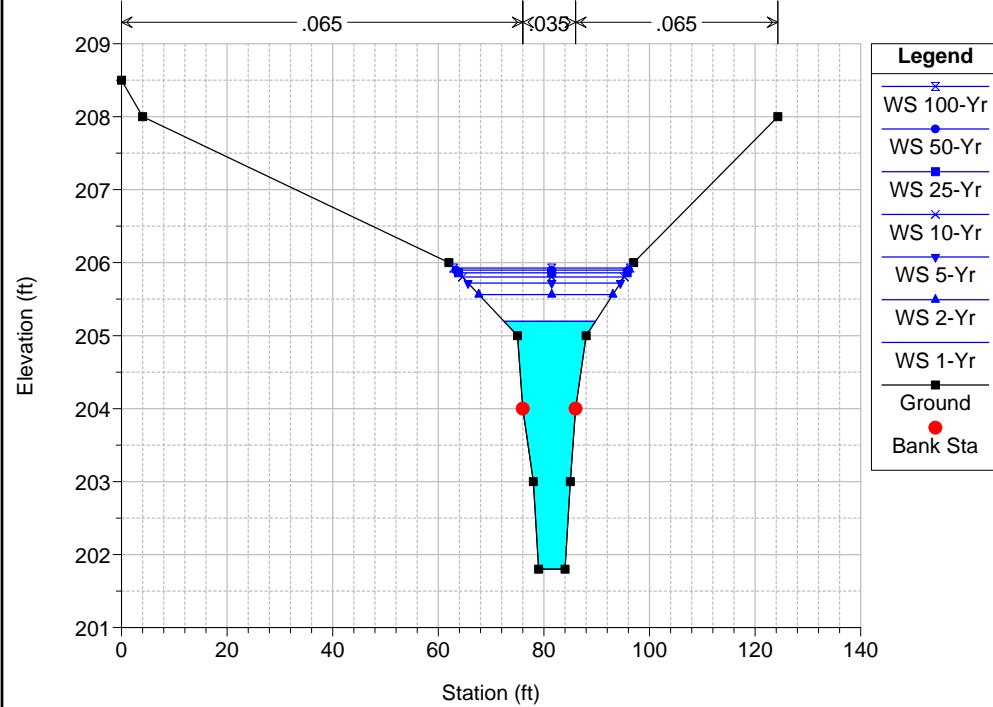
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 821 7+78 (Pool)



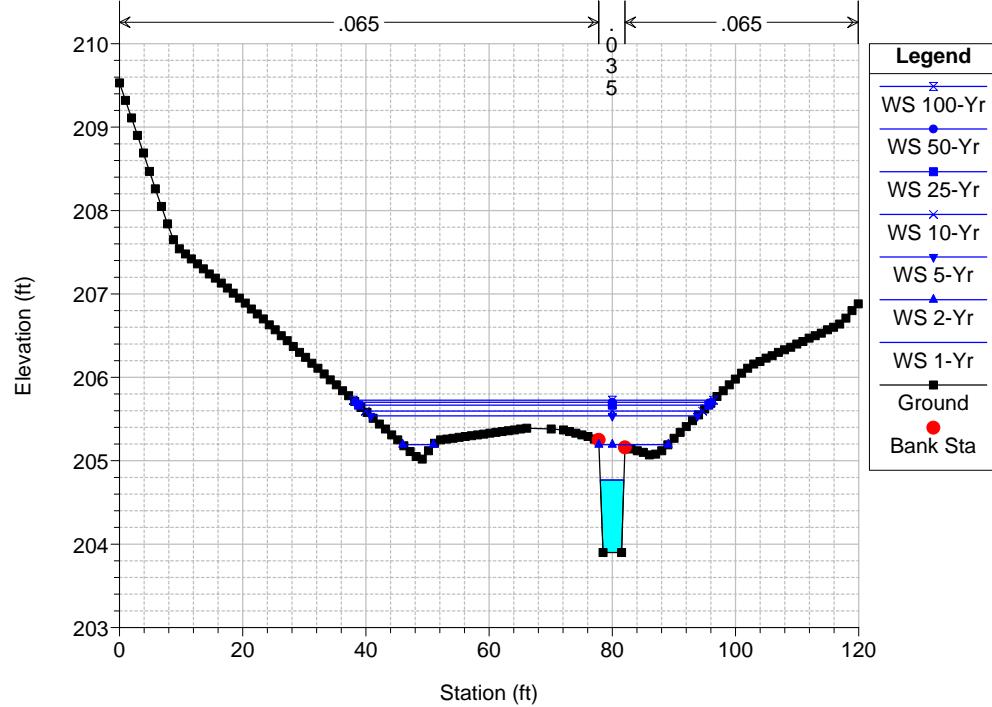
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 799 8+08 (Pool)



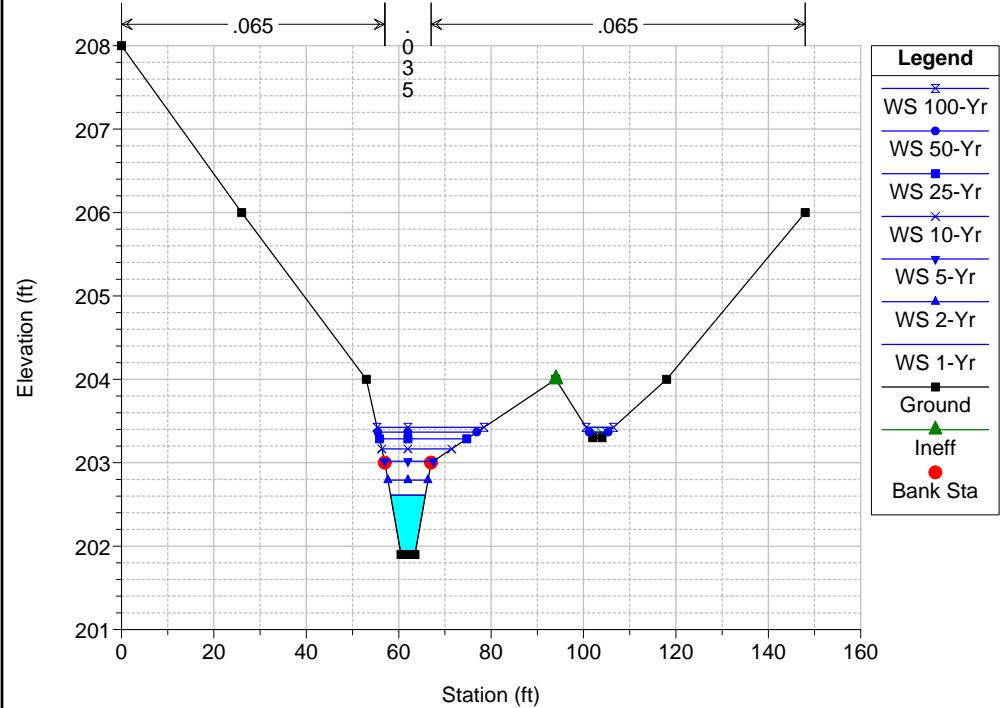
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 789 8+14 (Riffle) (Bottom was 203 instead of 203.9)



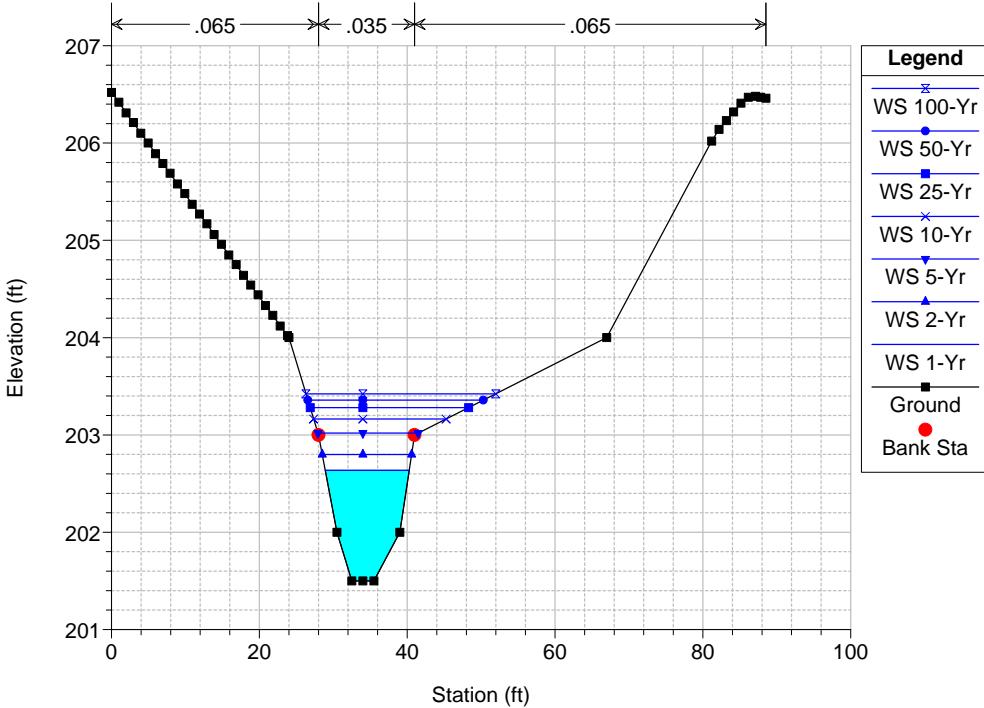
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 743 8+55 (Riffle)



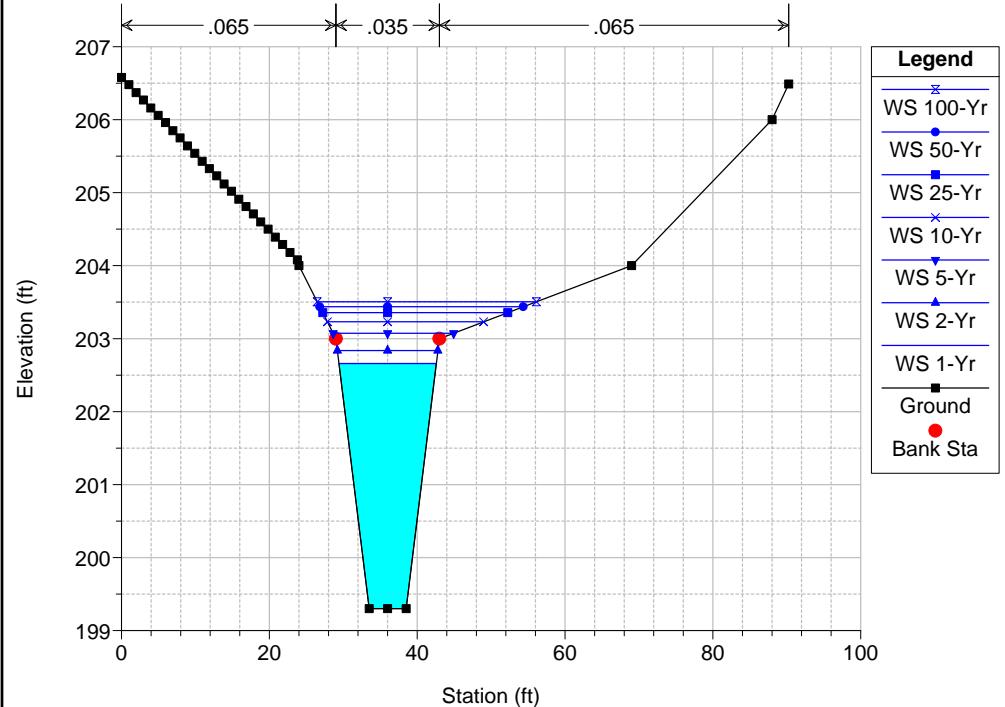
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 727 8+71 (Riffle)



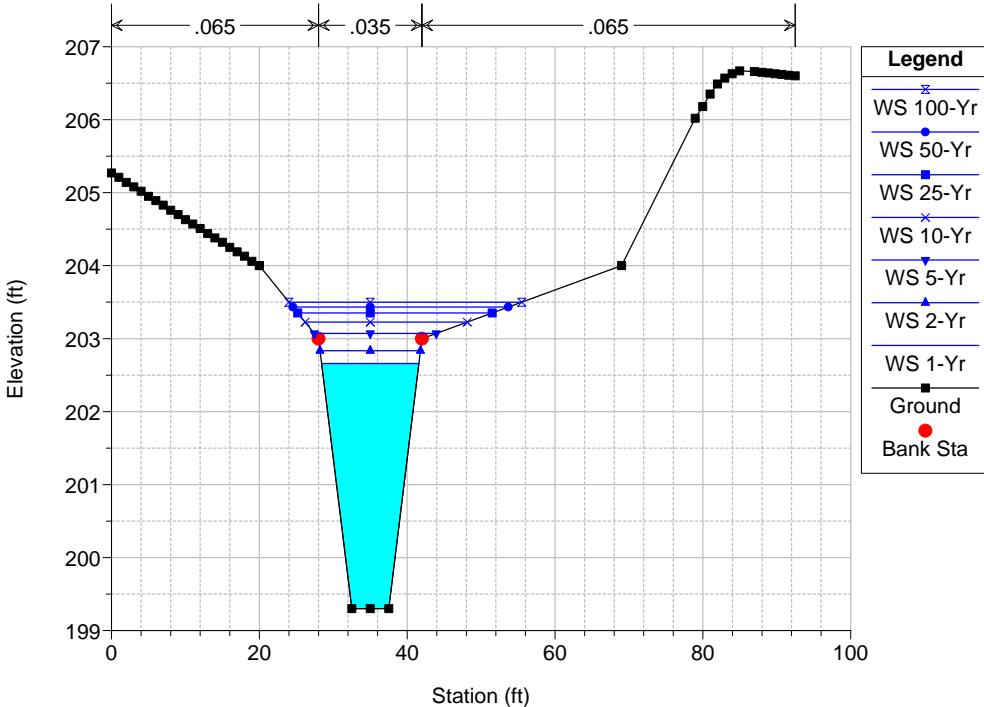
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 718 8+80 (Pool)

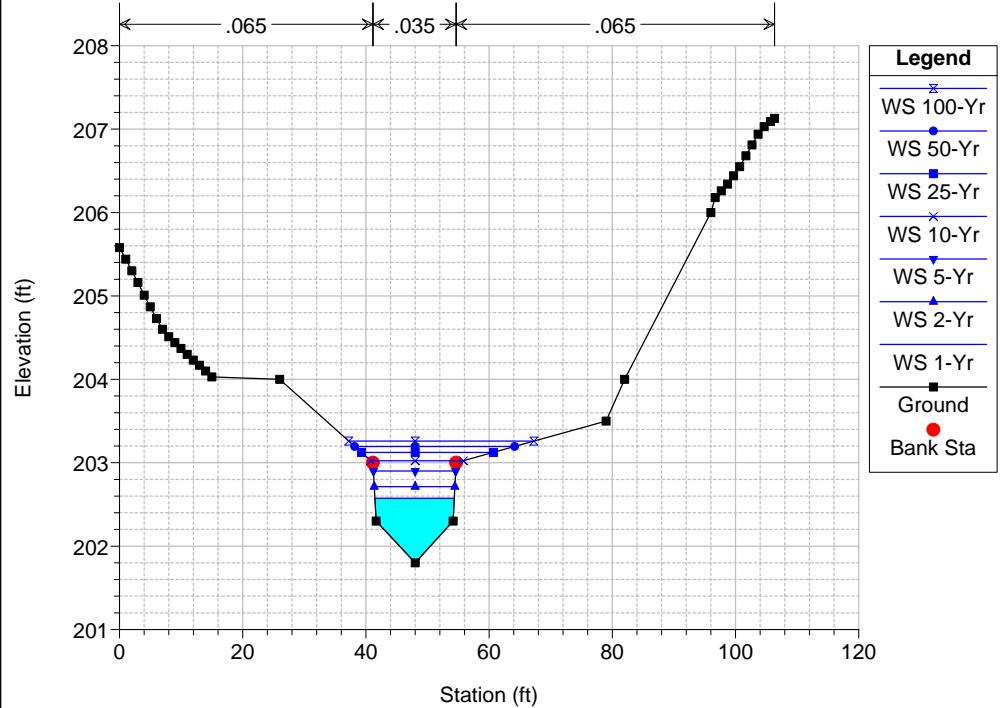


Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

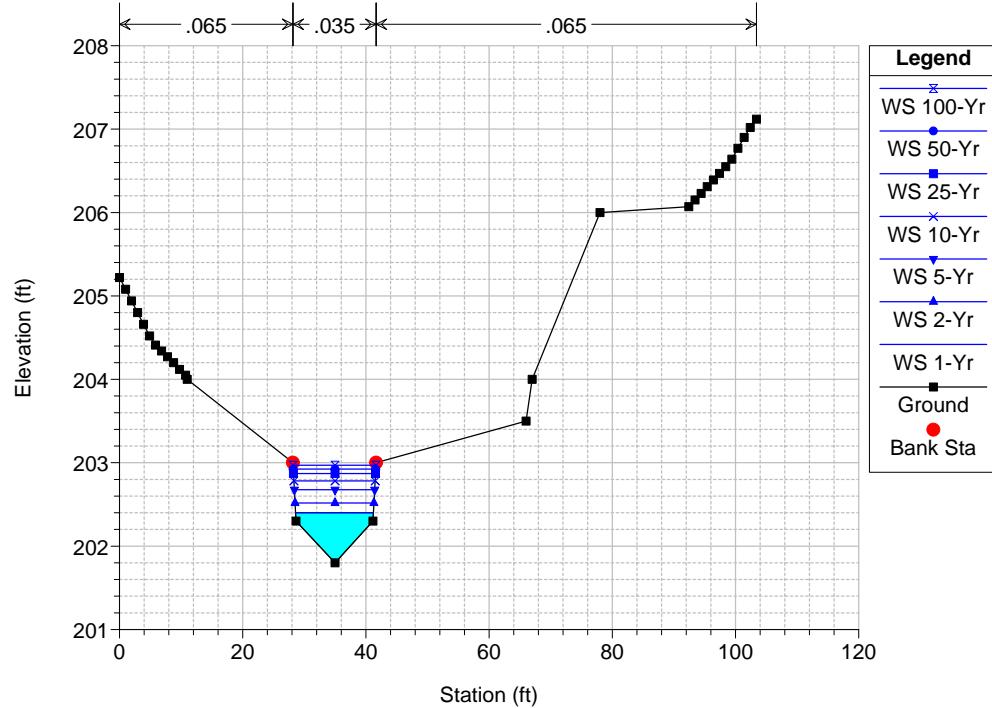
RS = 704 8+94 (Pool)



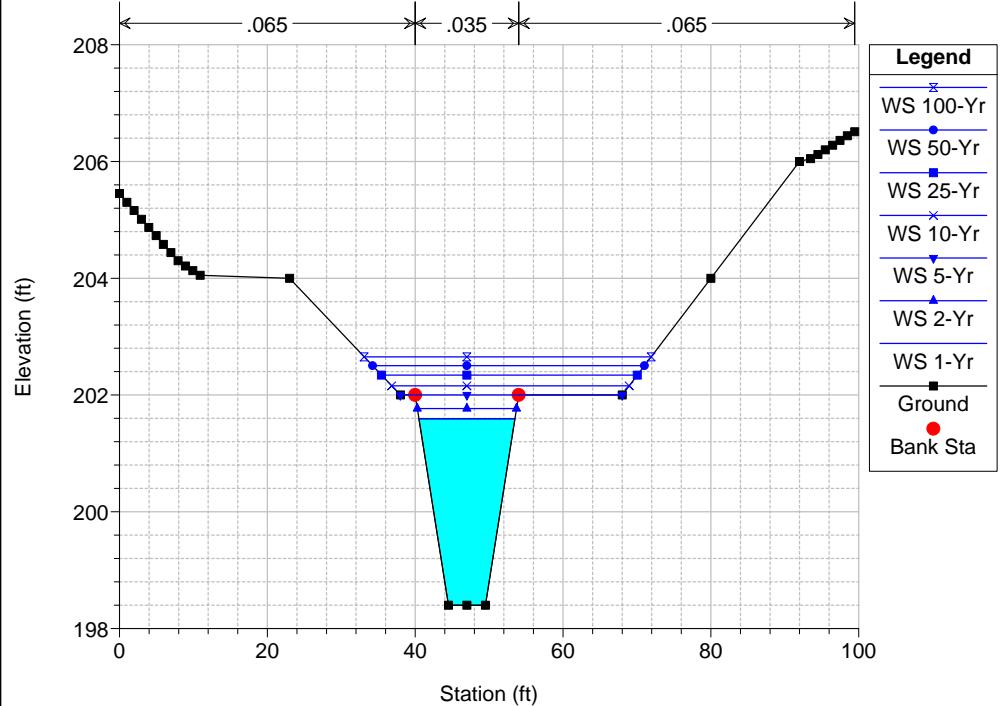
RS = 693 9+05 (Step)



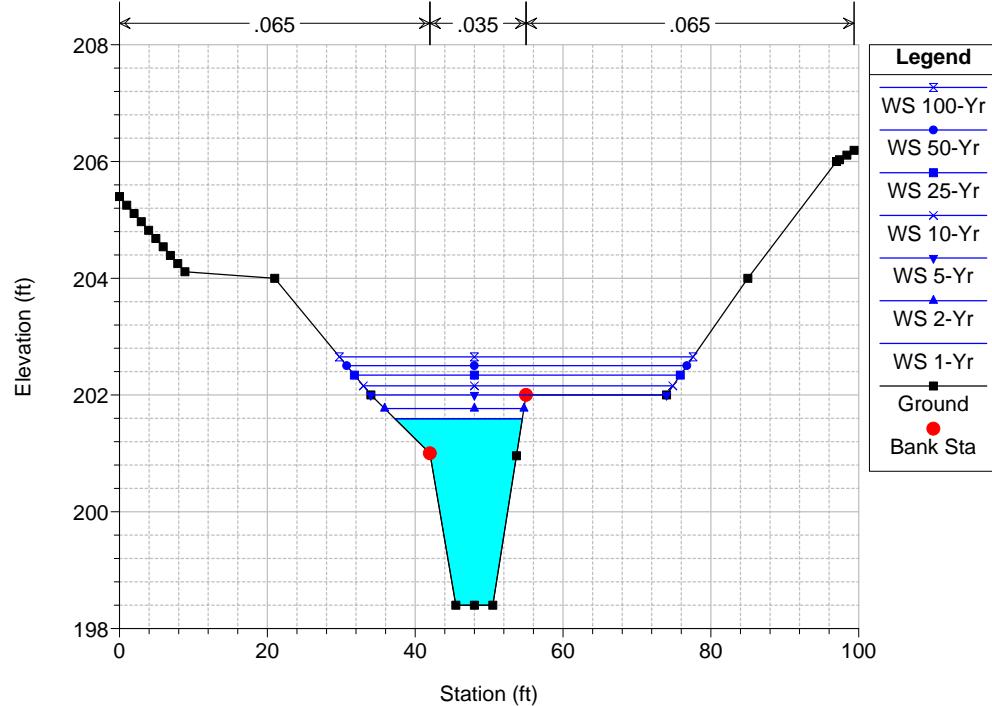
RS = 688 9+10 (Step)



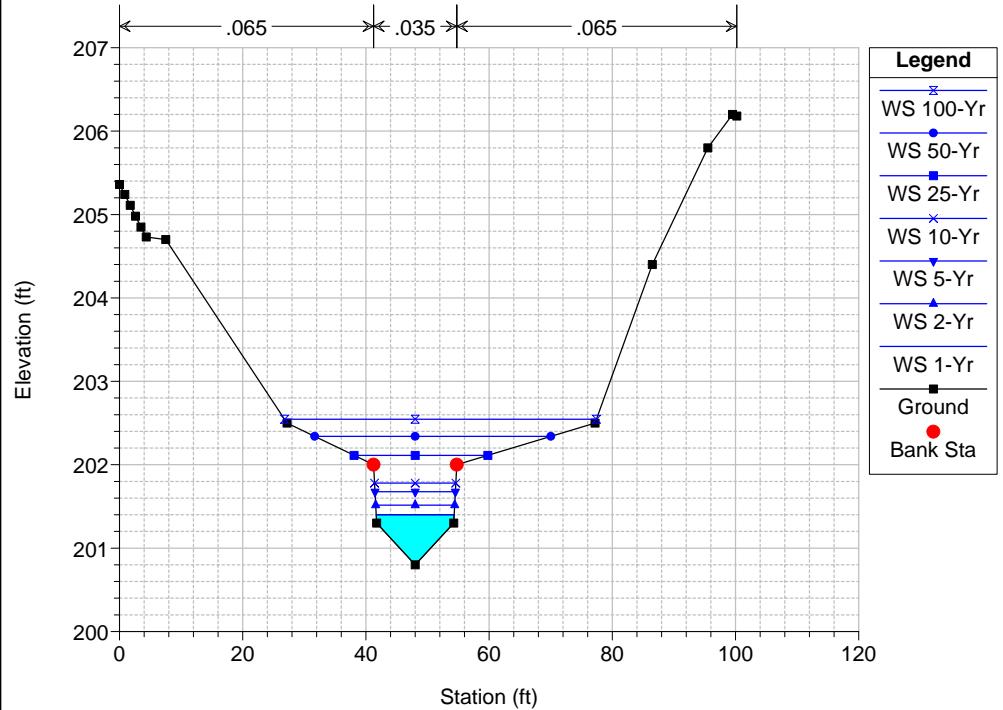
RS = 682 9+16 (Pool)



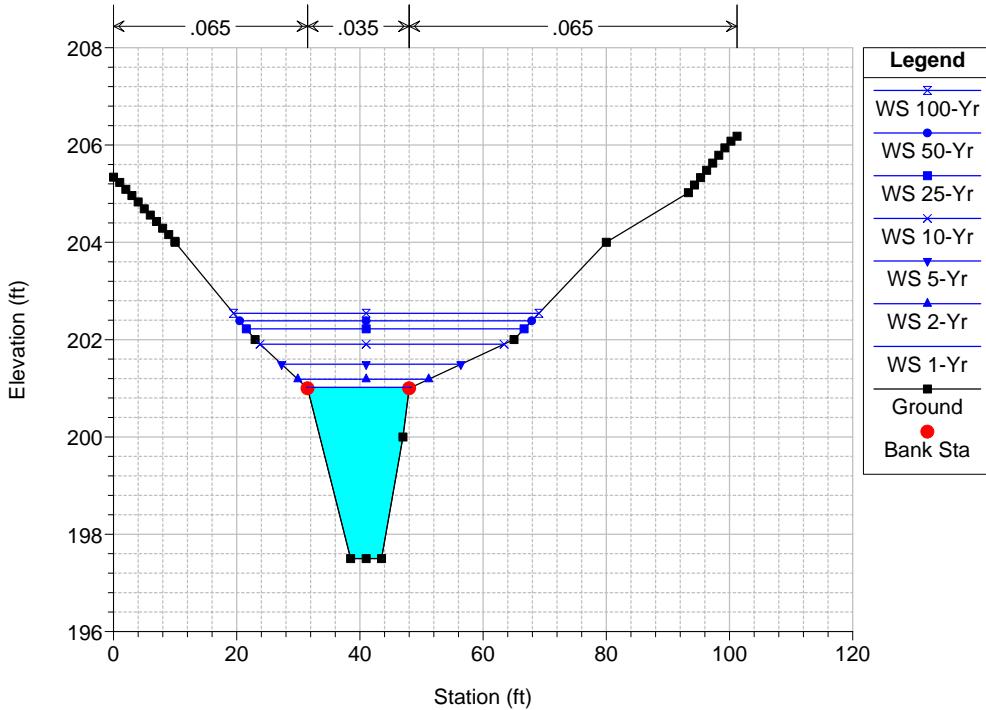
RS = 674 9+24 (Pool)



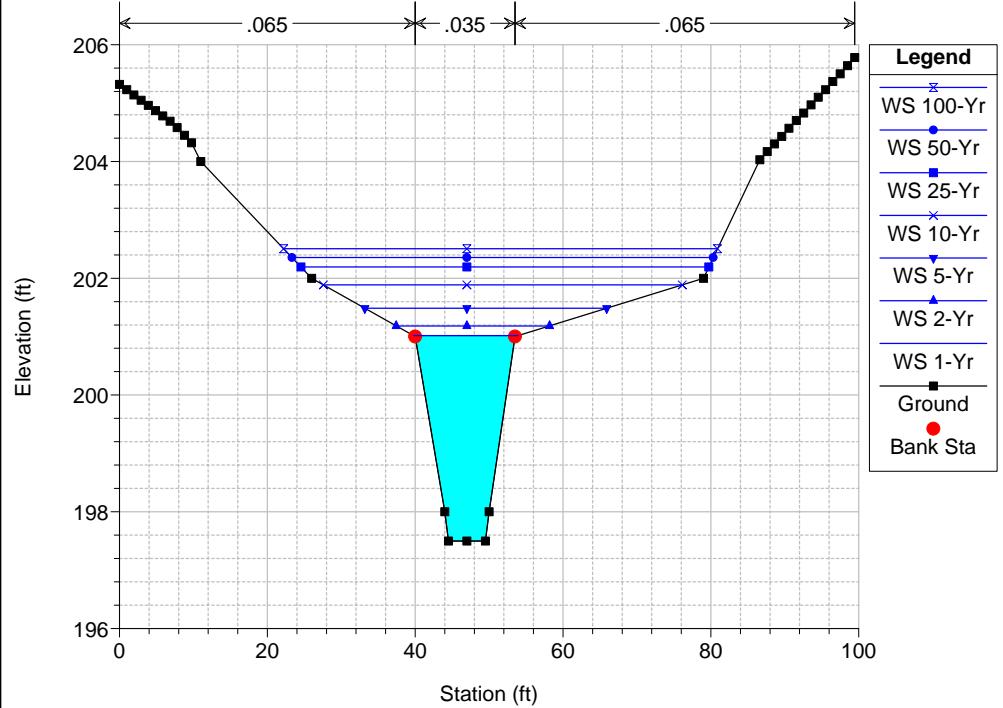
RS = 671 9+27 (XS 12) (Step)



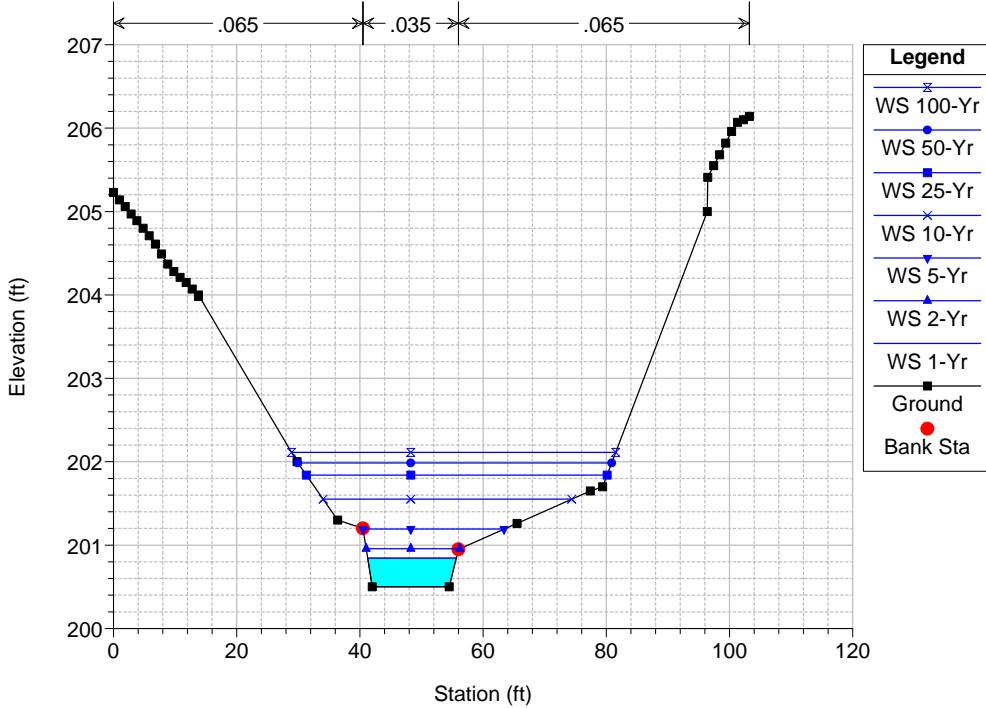
RS = 668 9+30 (Pool)



RS = 658 9+40 (Pool)

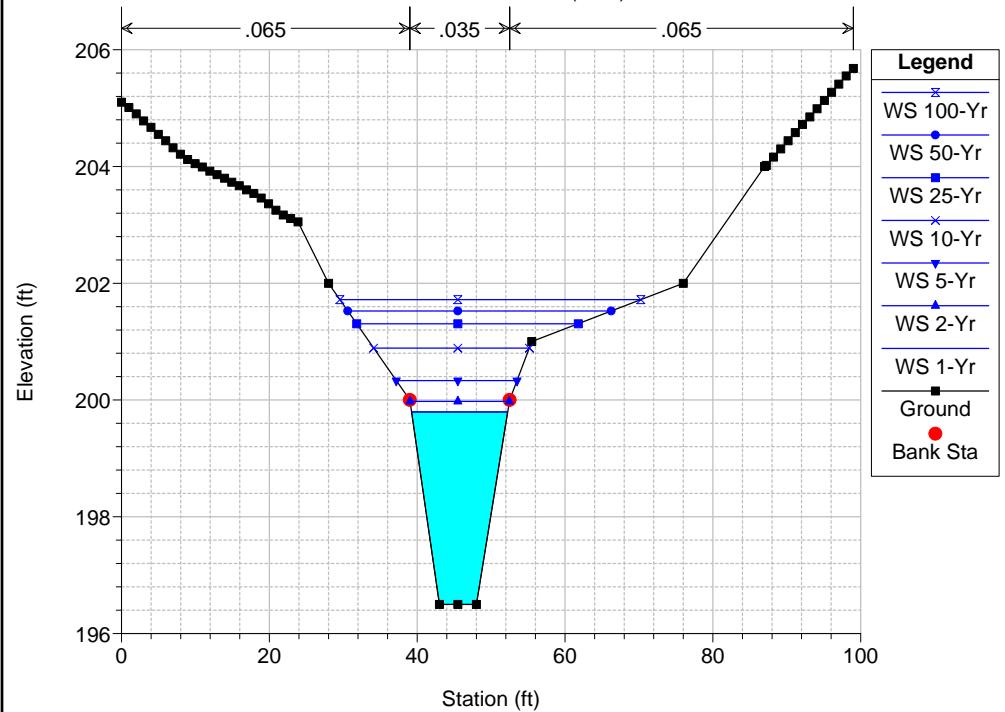


RS = 654 9+44 (XS 14) (Step)



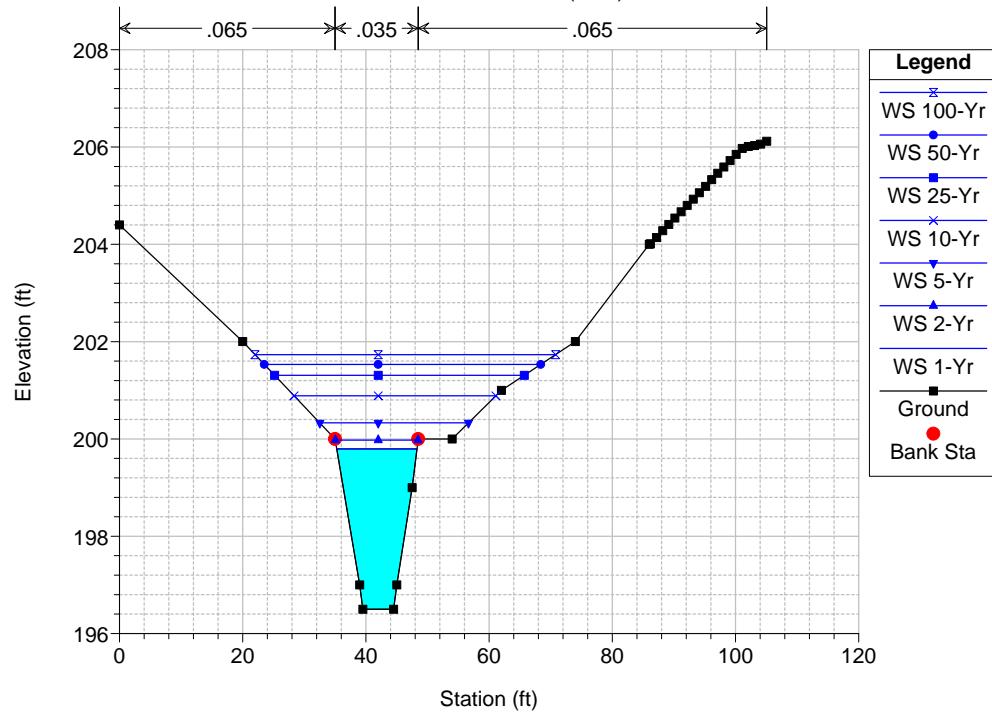
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 651 9+47 (Pool)



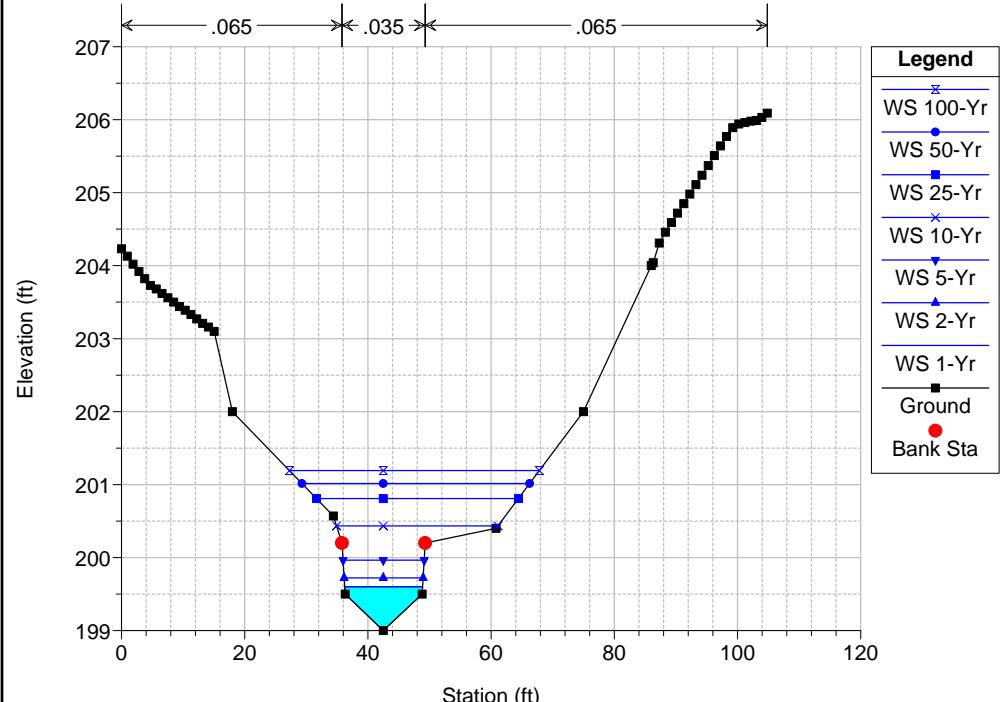
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 640 9+58 (Pool)



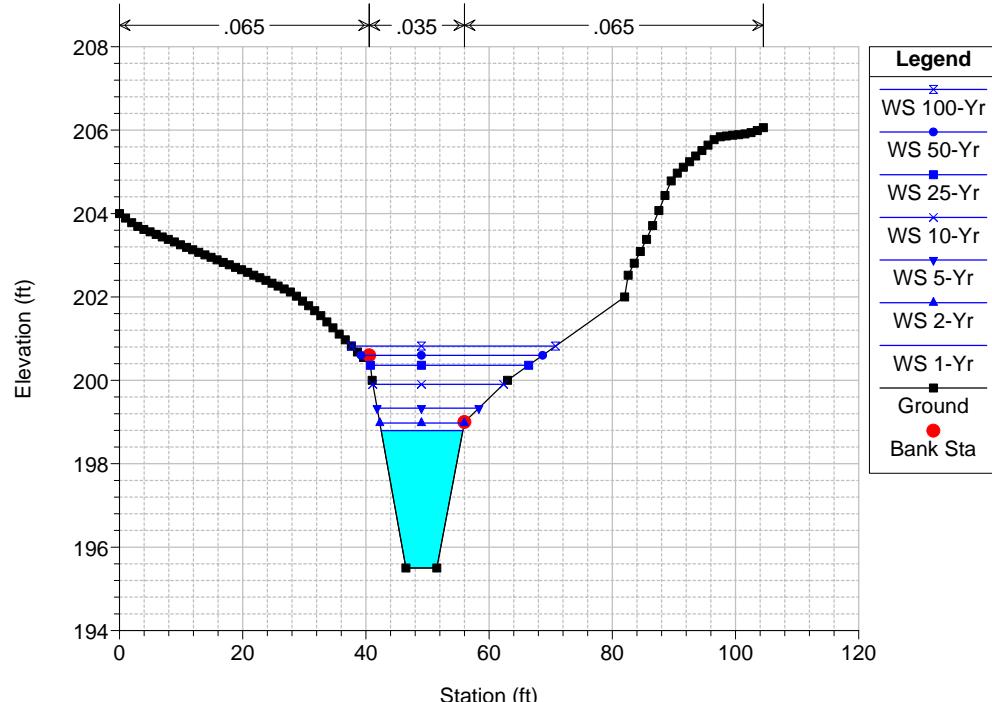
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 637 9+61 (XS 16) (Step)



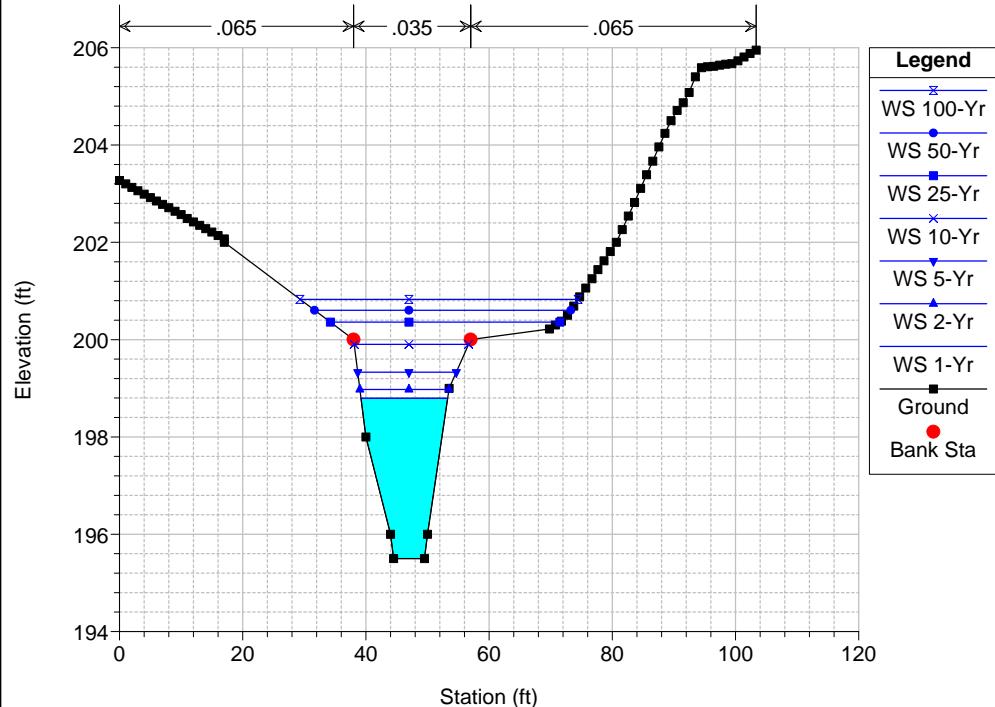
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 634 9+64 (Pool)



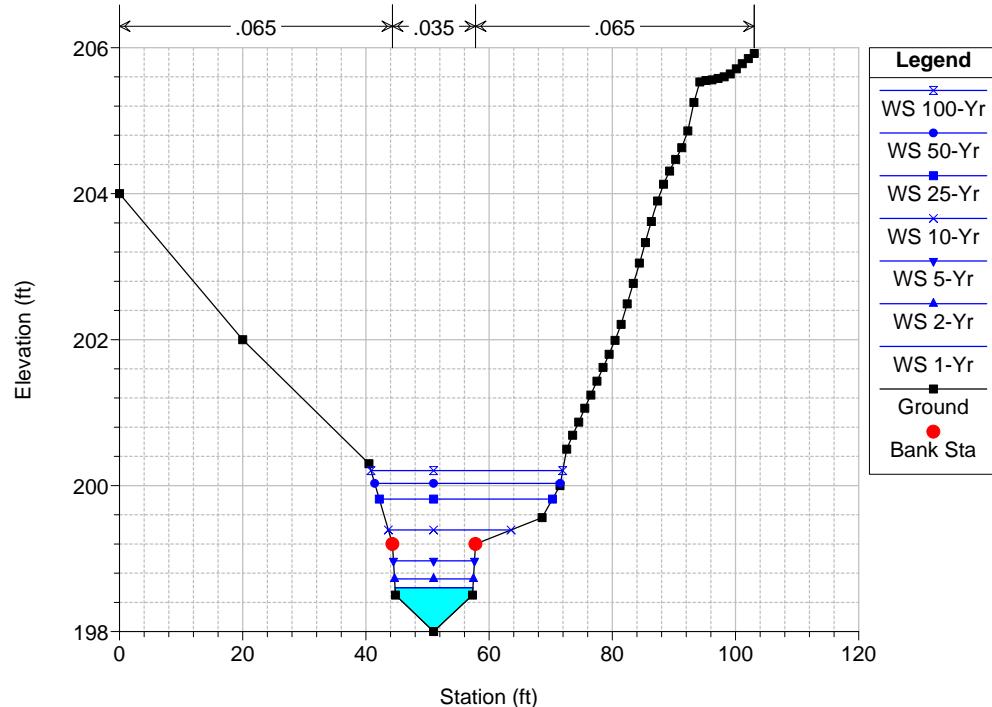
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 623 9+75 (Pool)



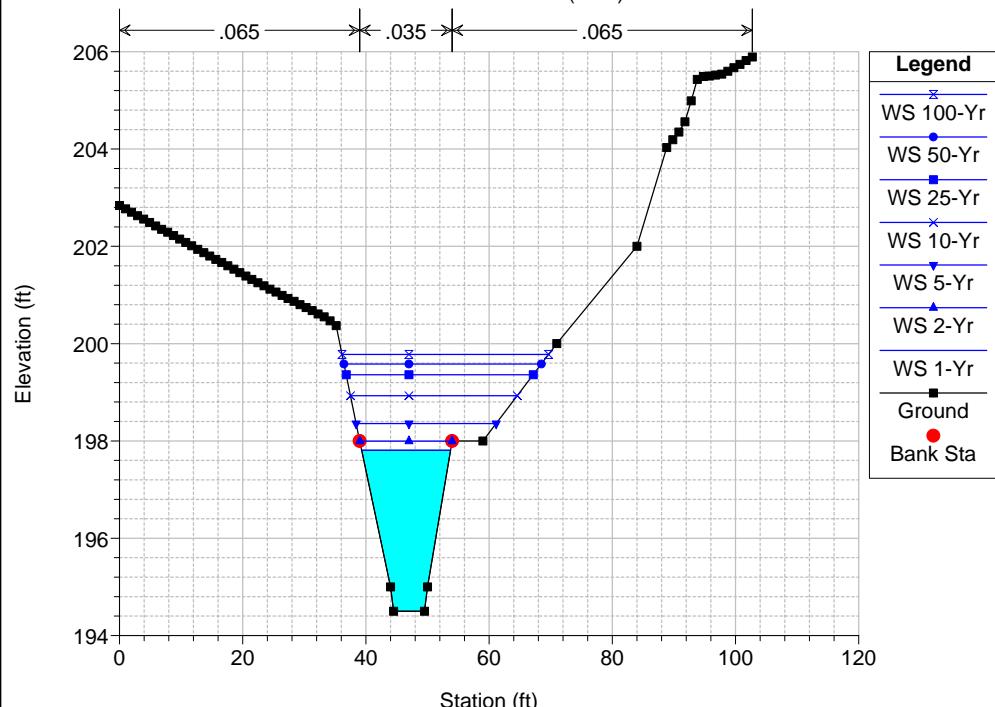
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 620 9+78 (XS-18) (Step)



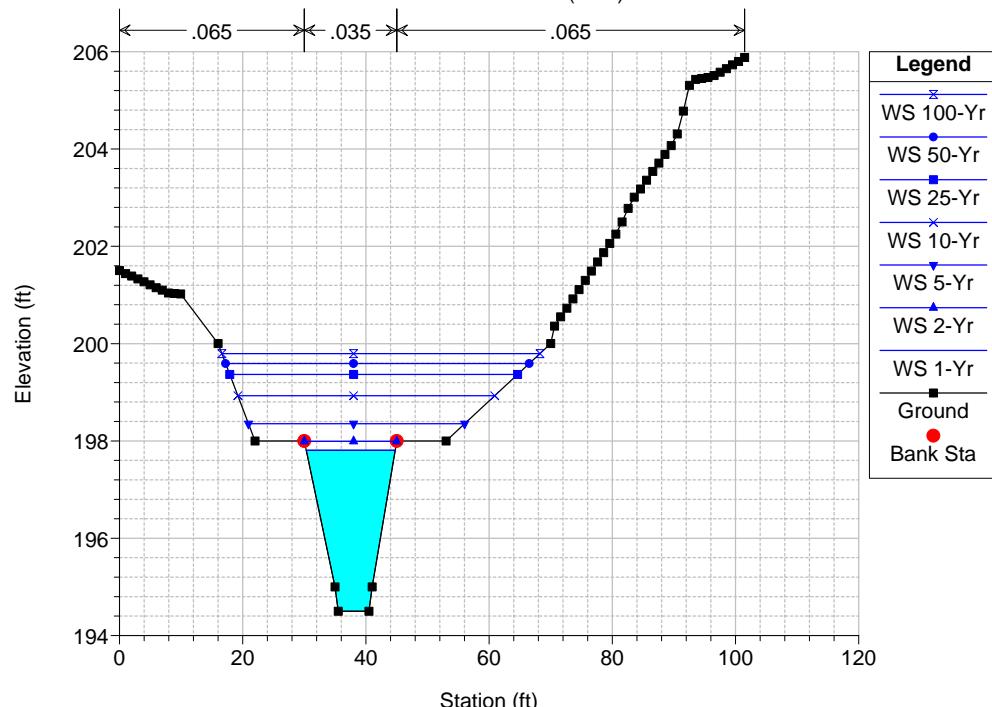
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 616 9+82 (Pool)



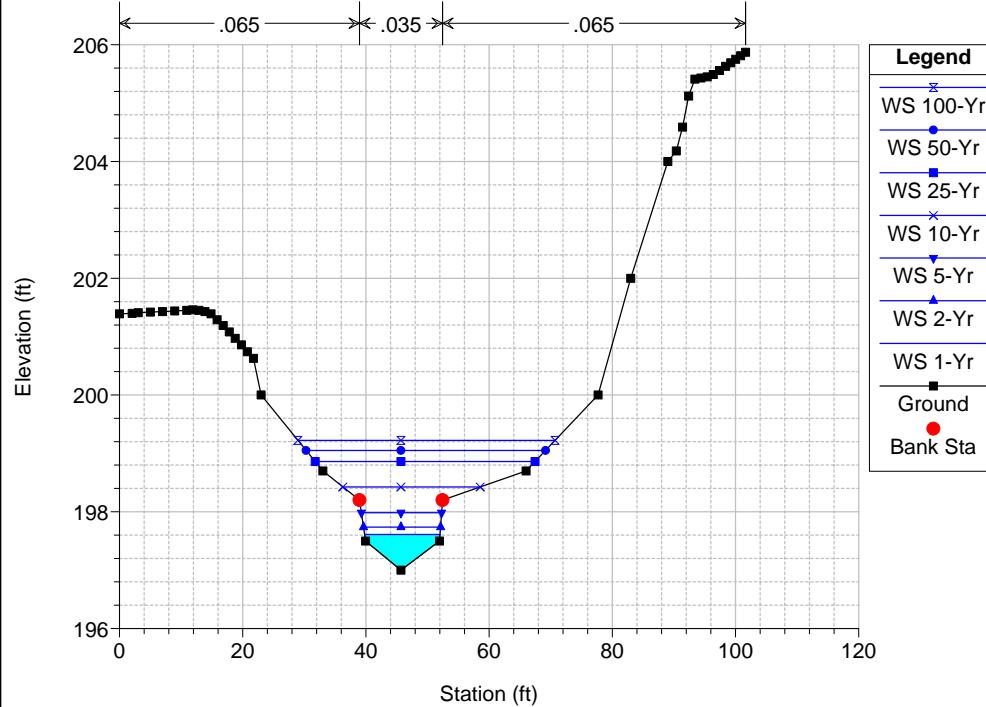
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 605 9+93 (Pool)



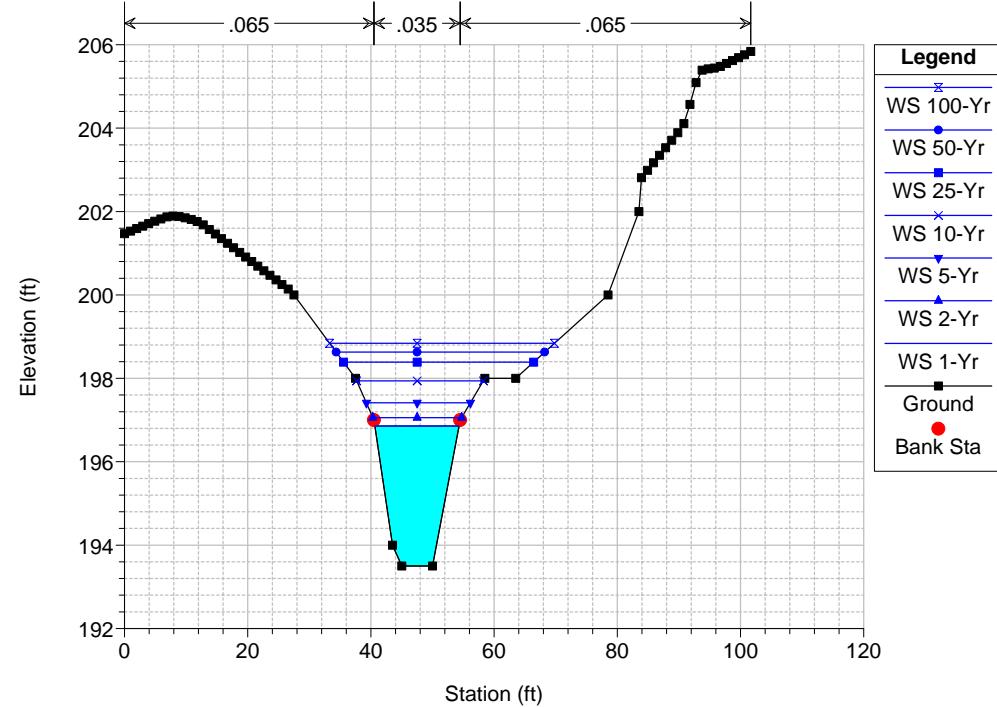
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 602 9+96 (XS-20) (Step)



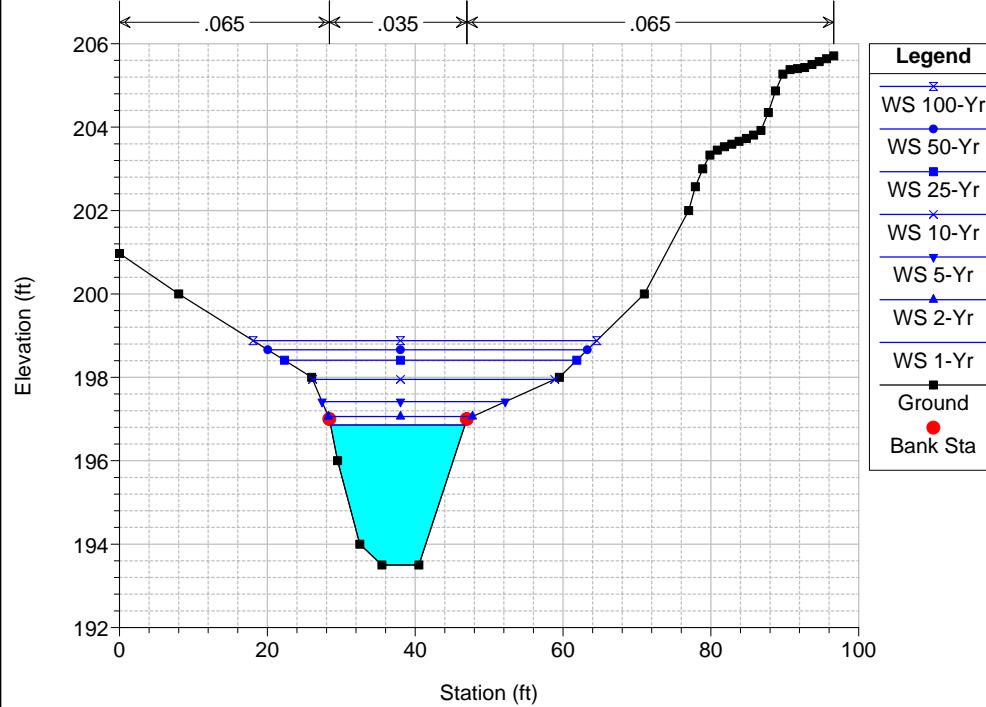
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 599 9+99 (Pool)



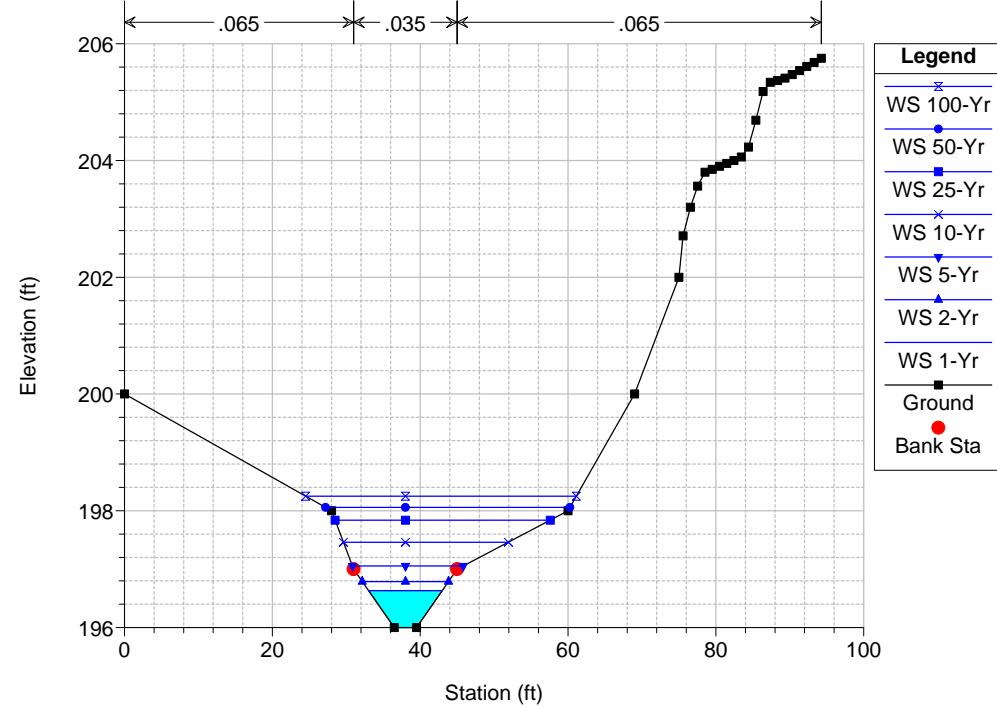
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

RS = 589 10+10 (Pool)

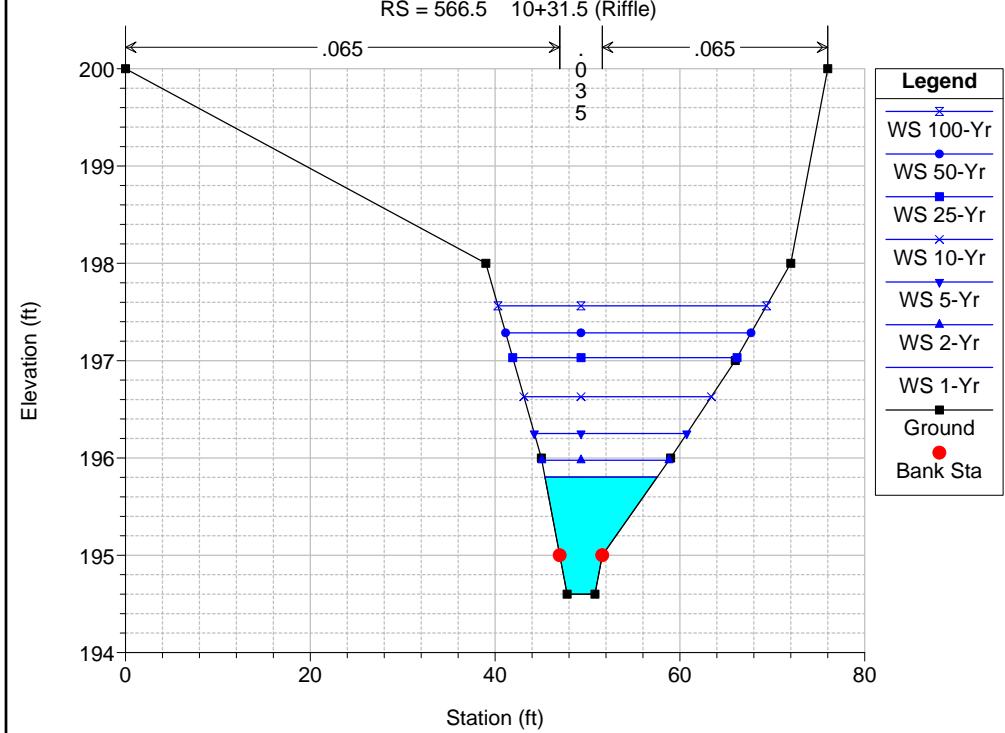


Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

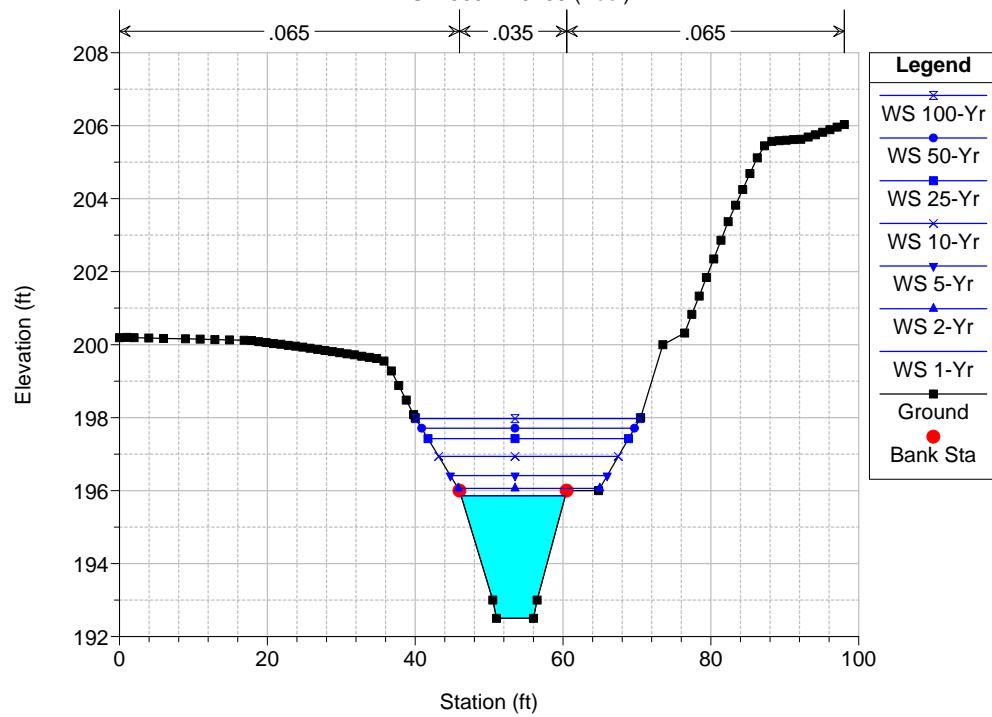
RS = 585 10+13 (Riffle)



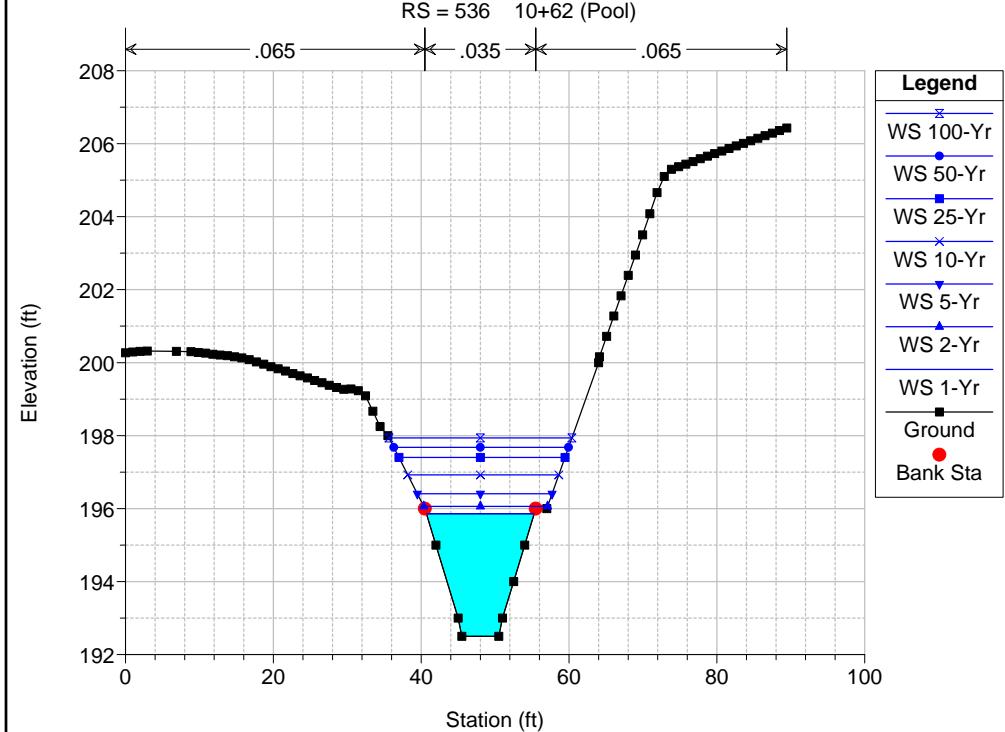
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013



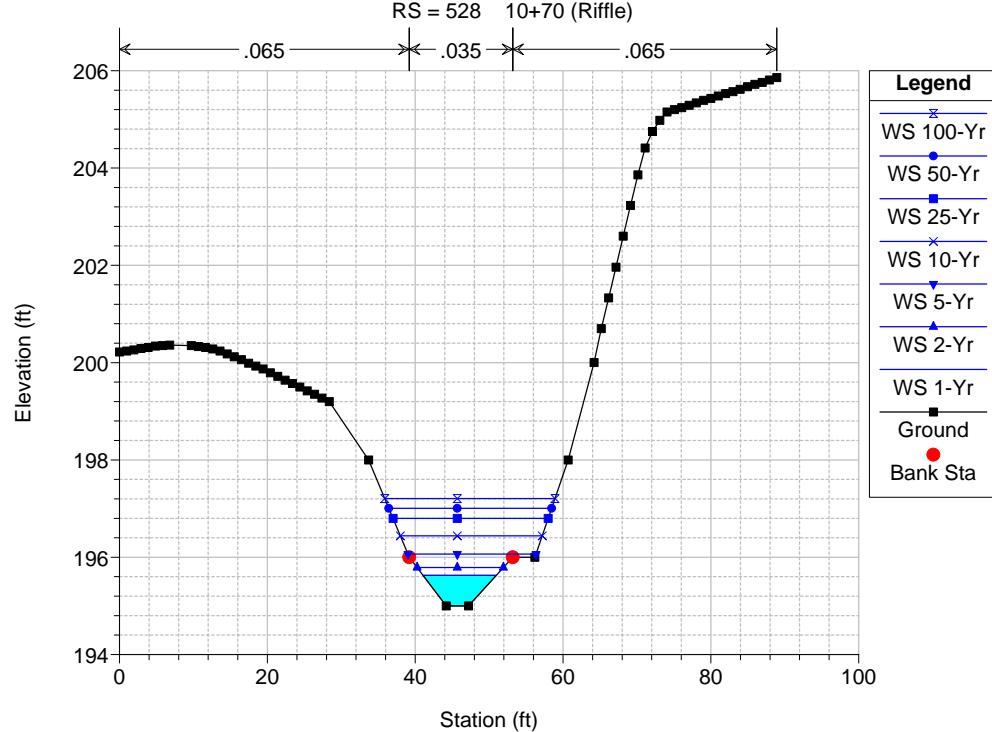
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

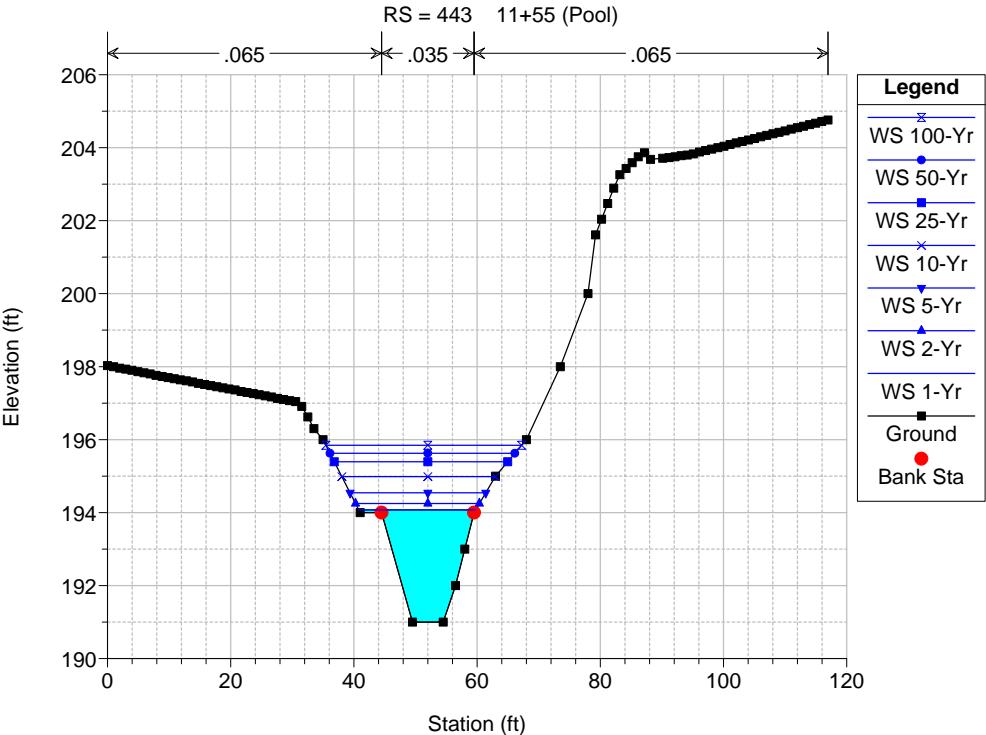
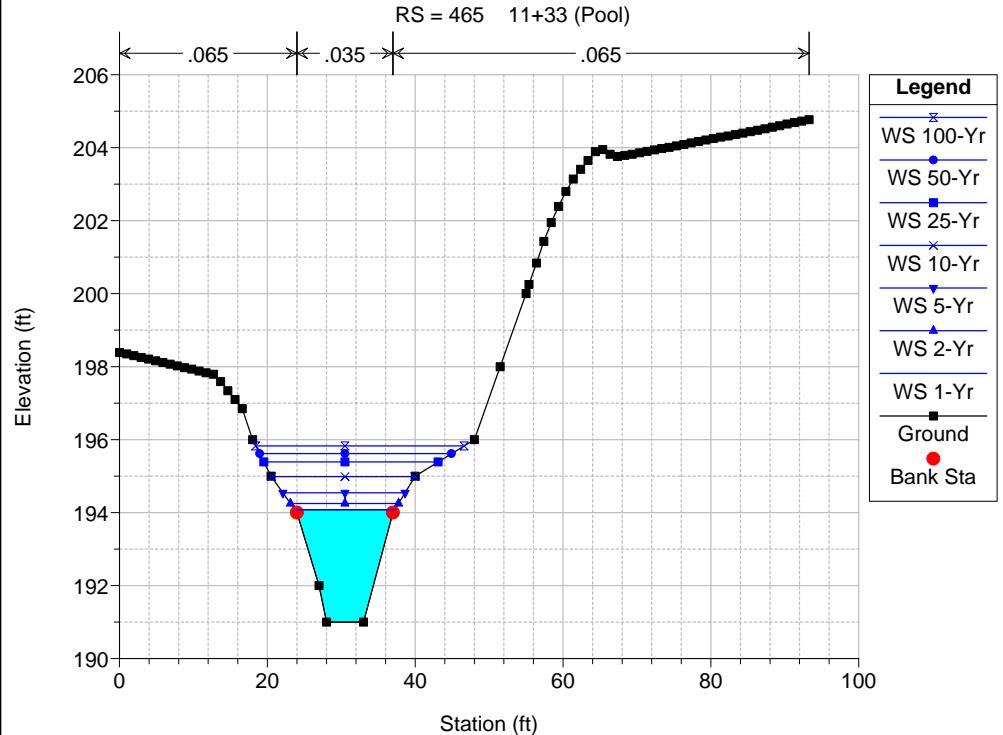
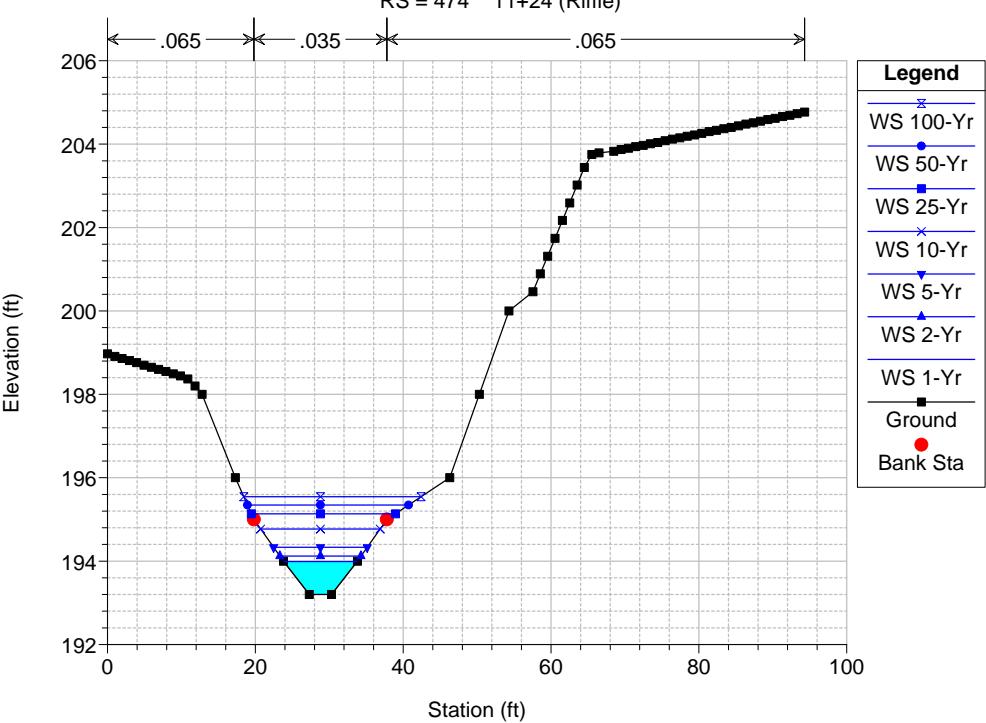
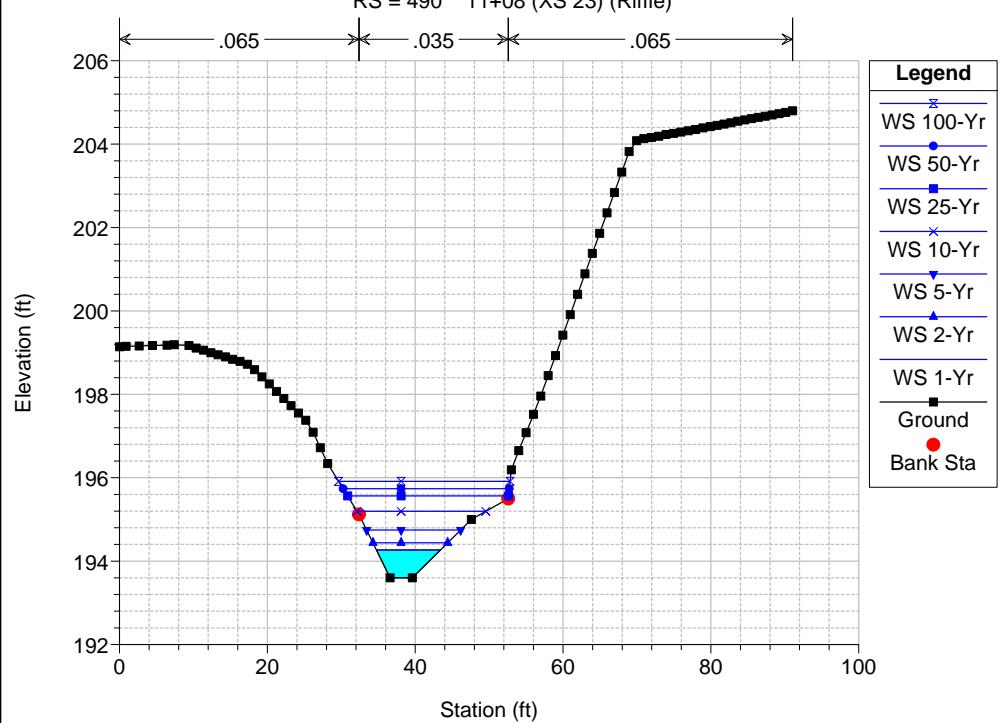


Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

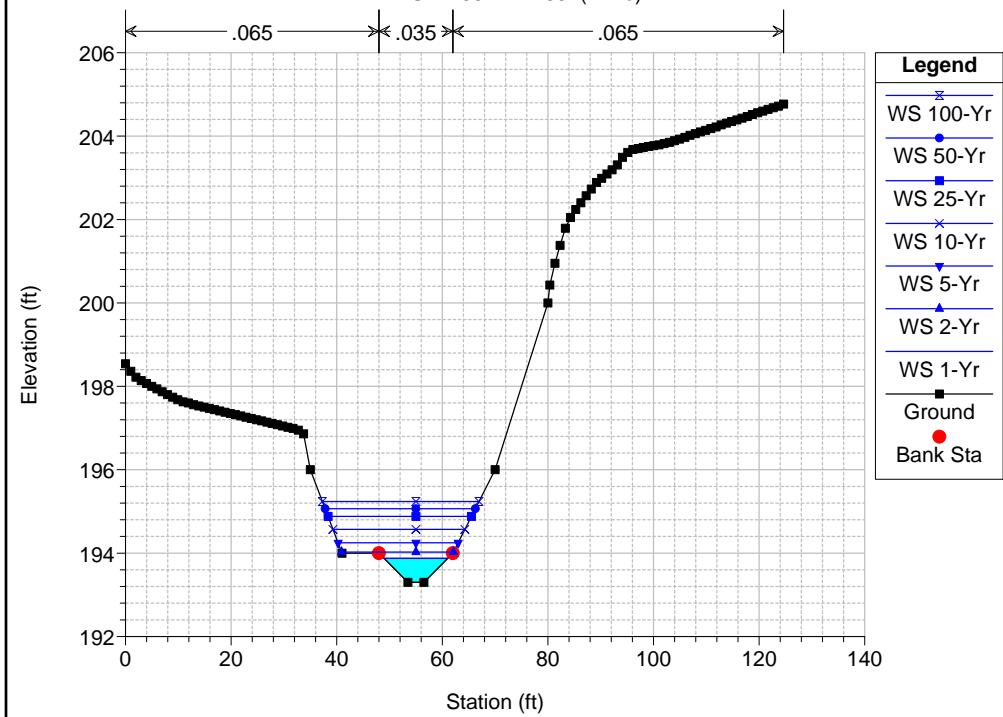


Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

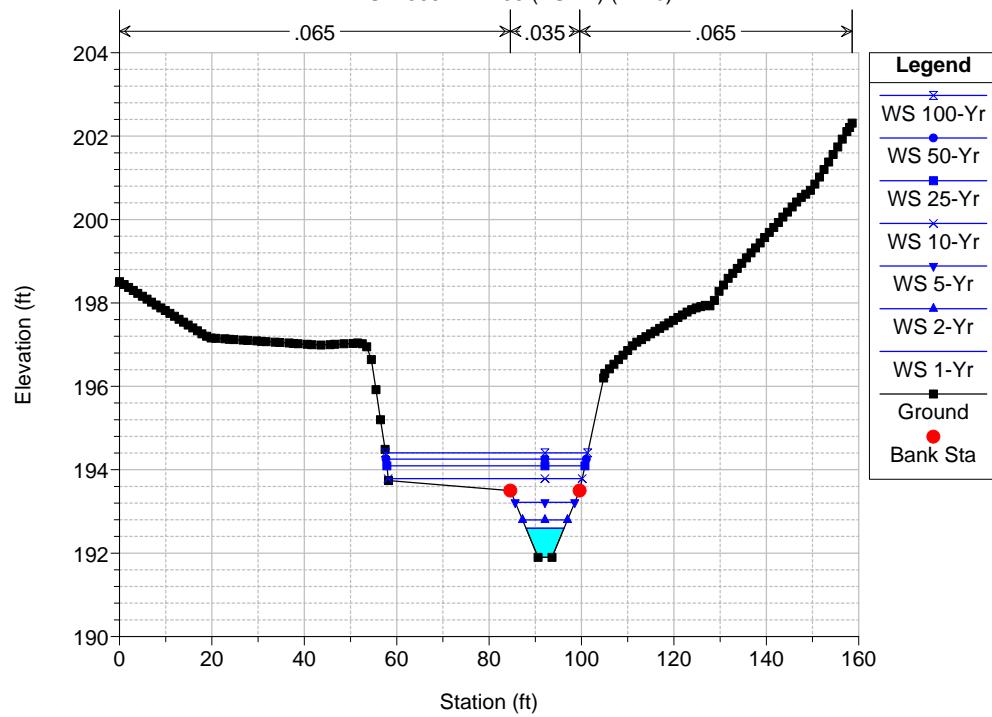




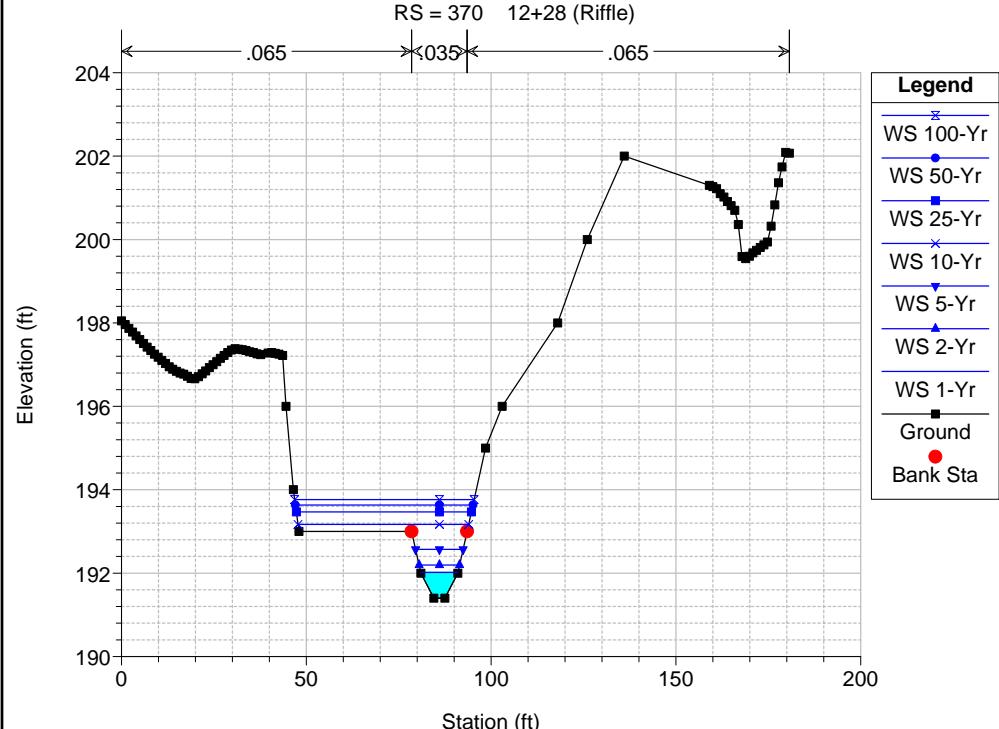
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013



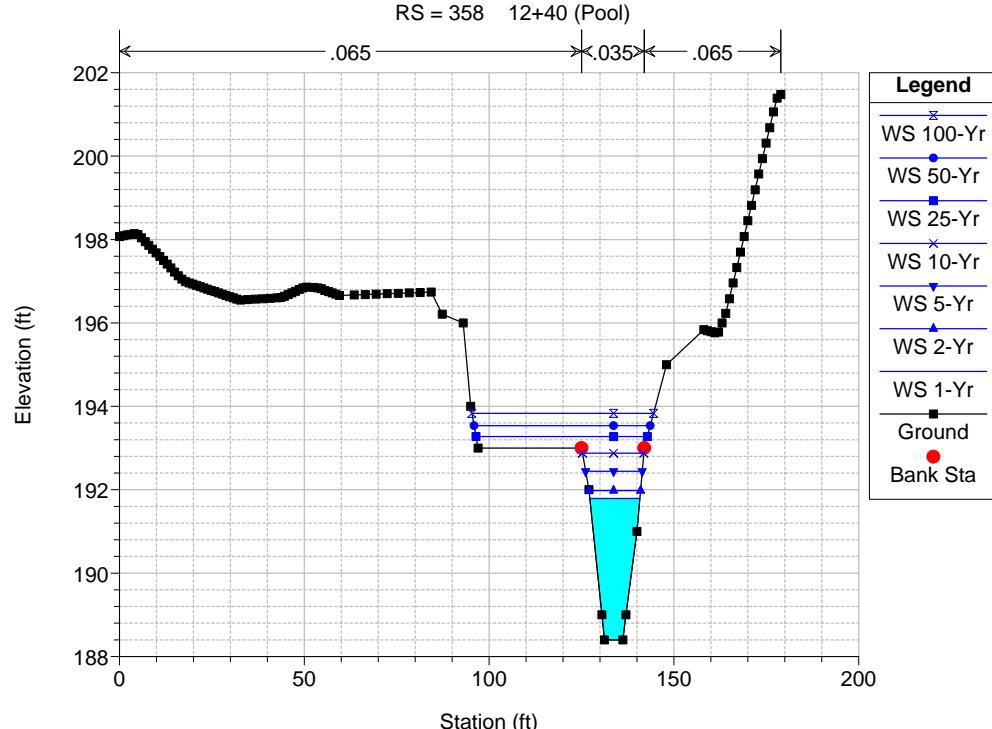
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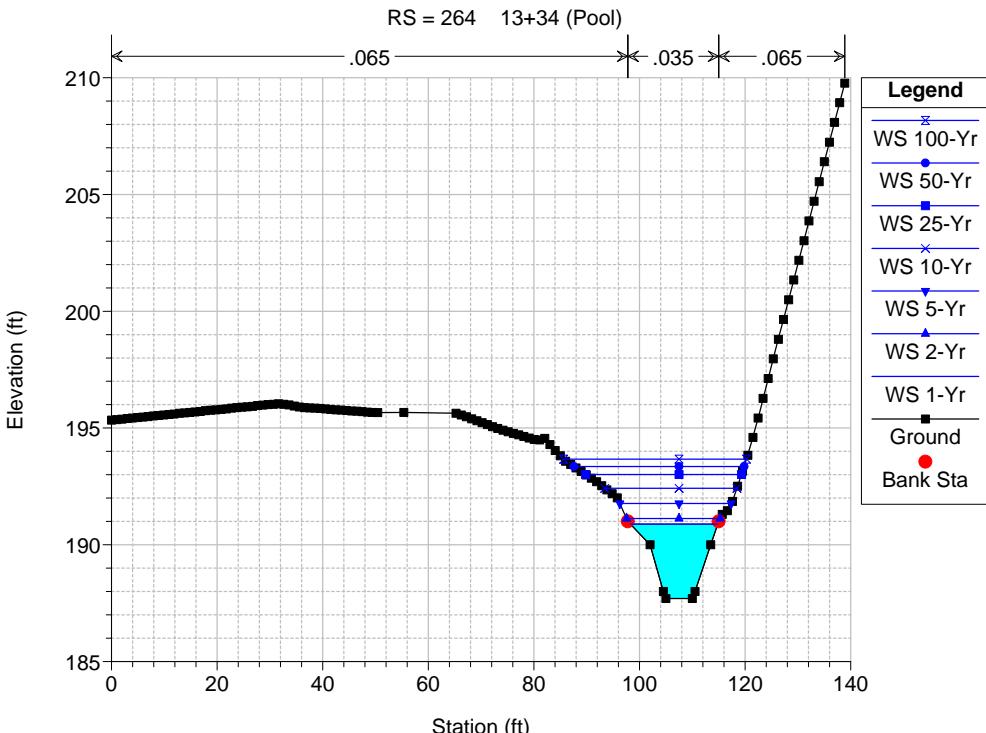
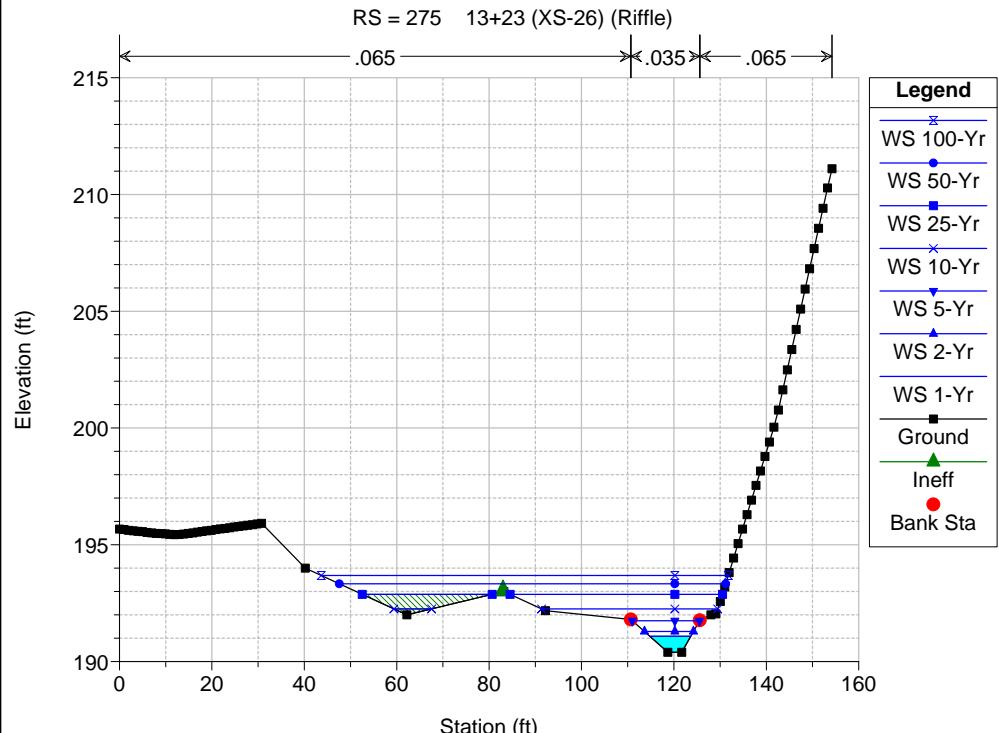
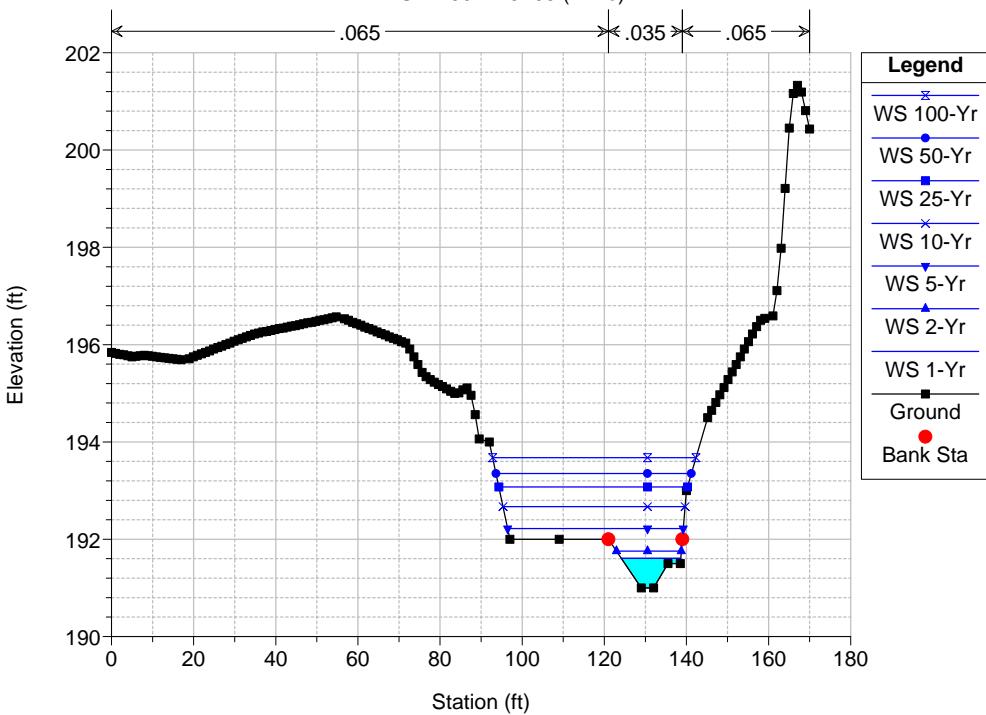
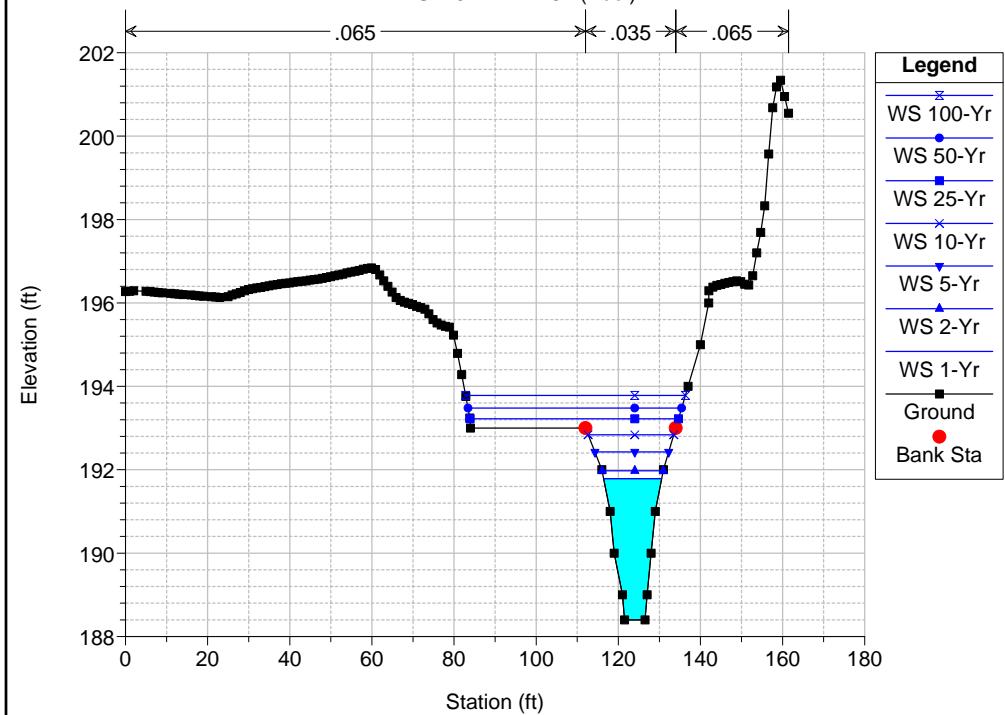


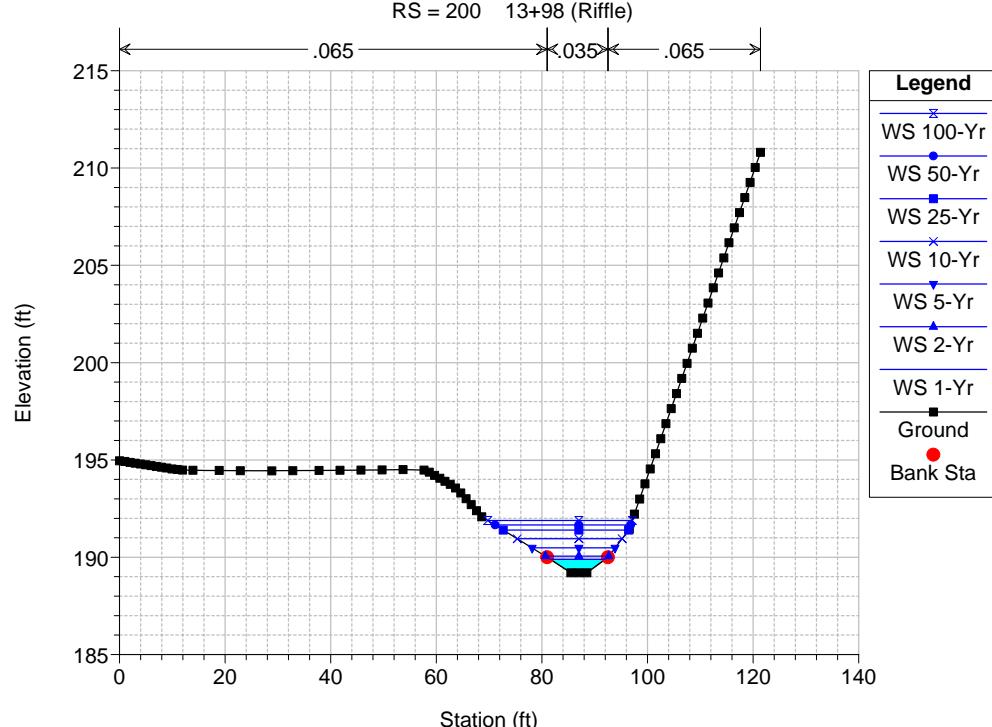
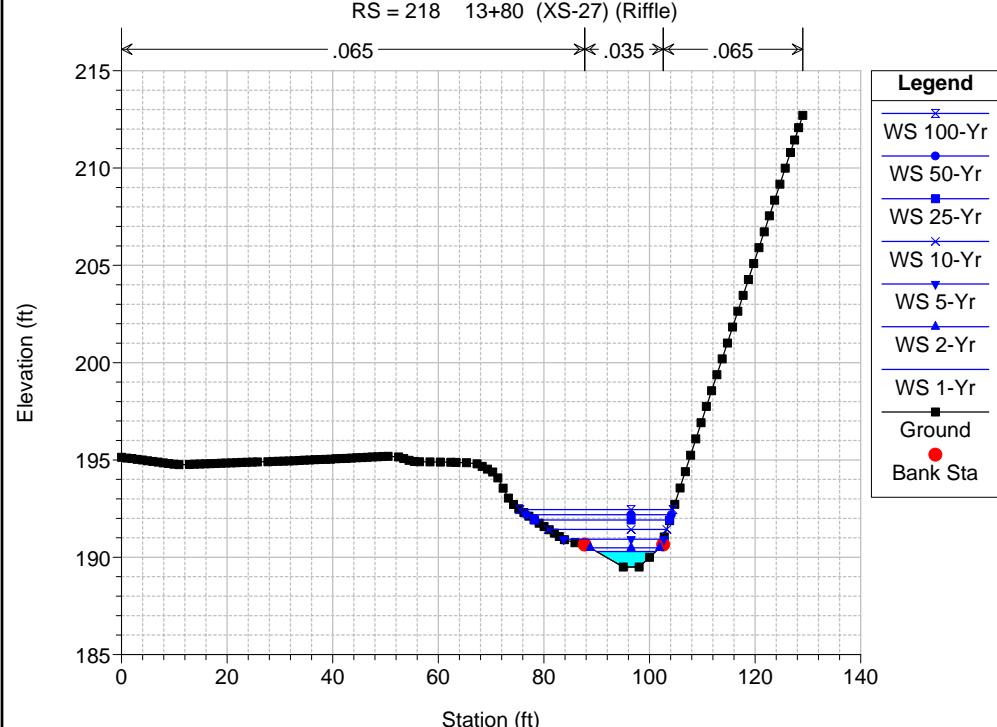
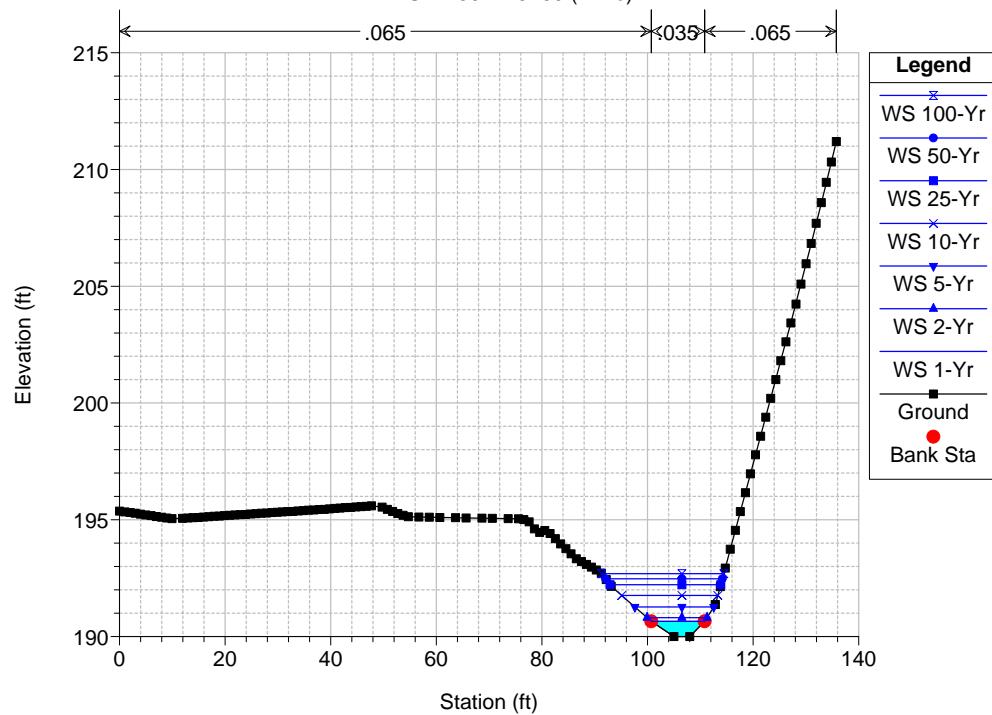
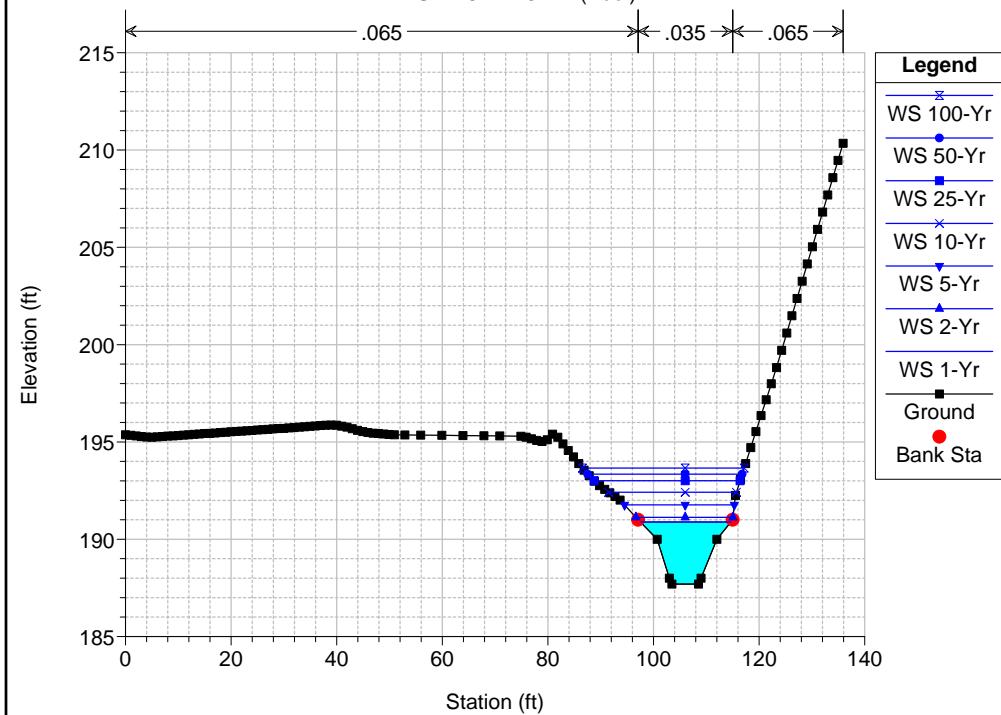
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

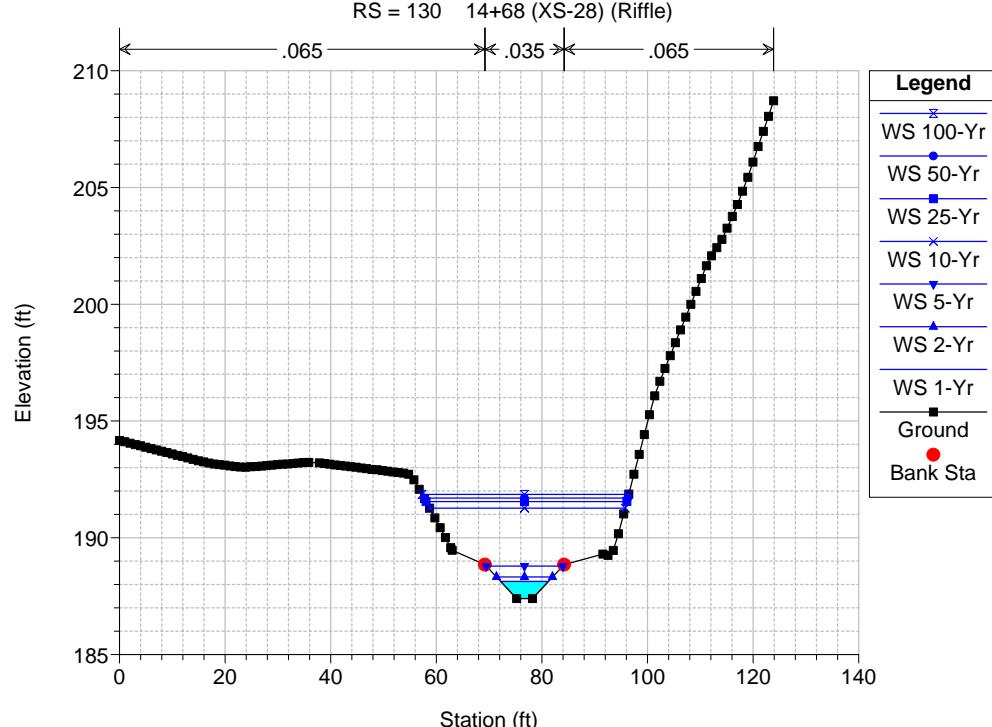
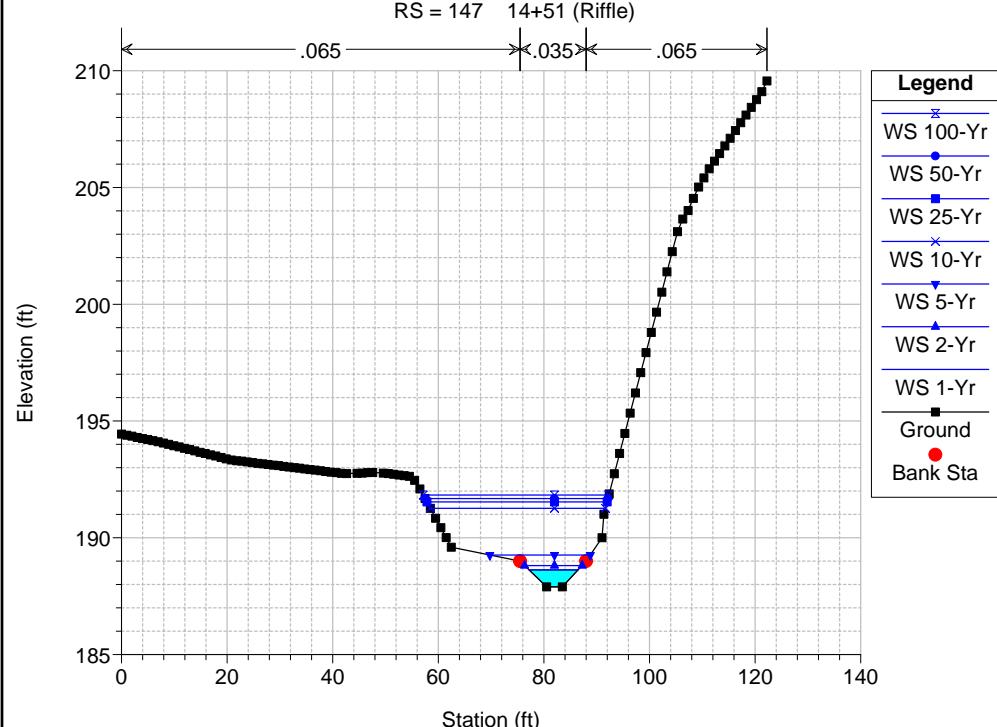
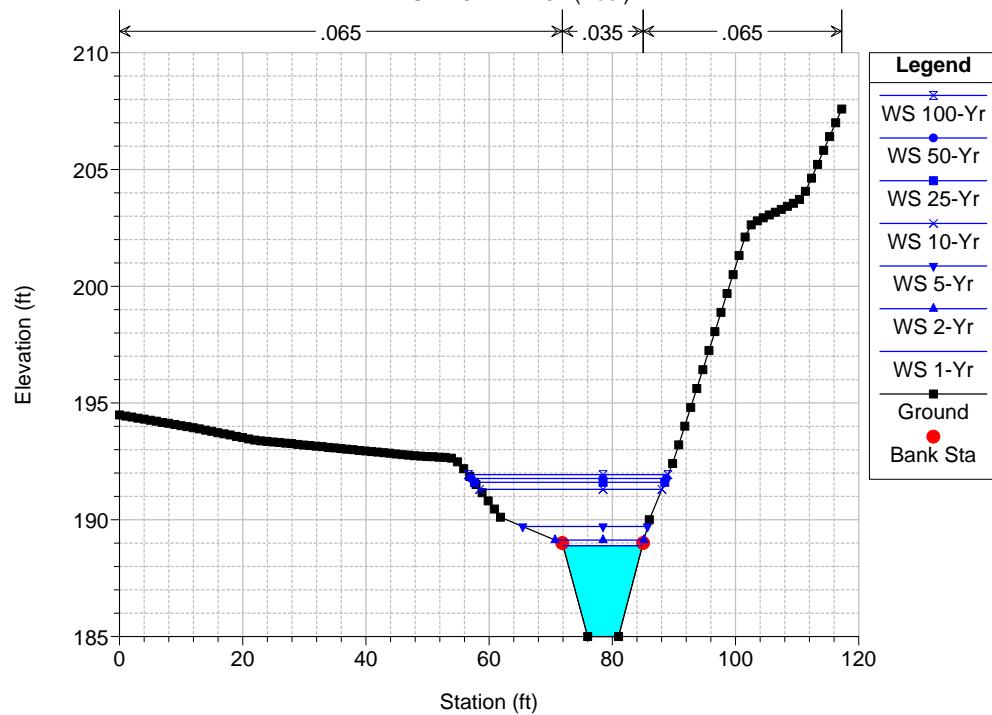
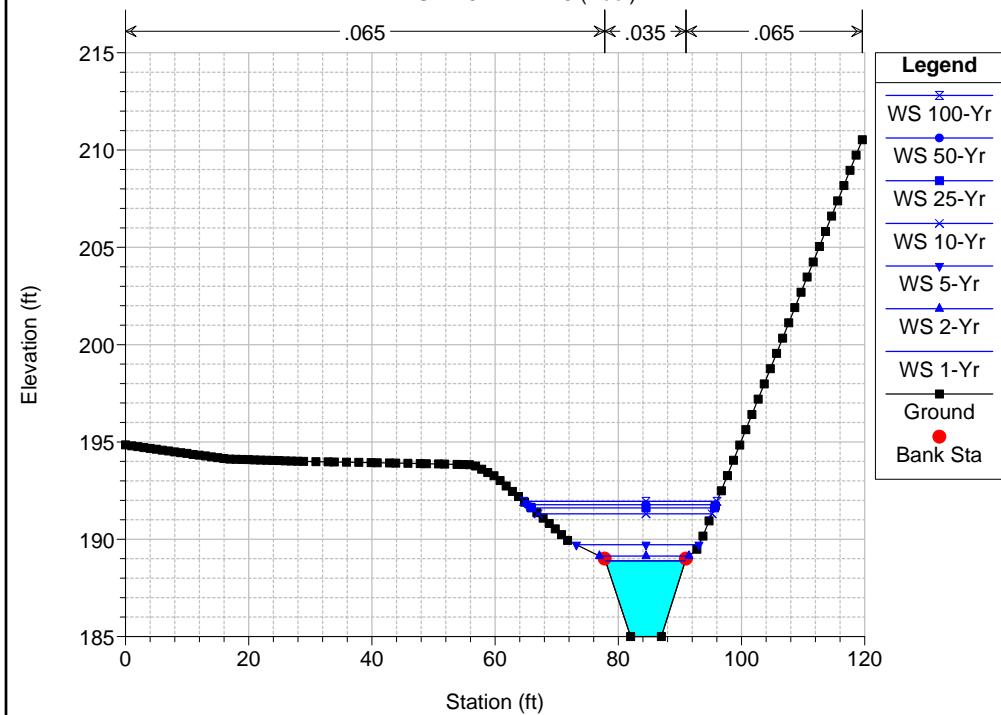


Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013

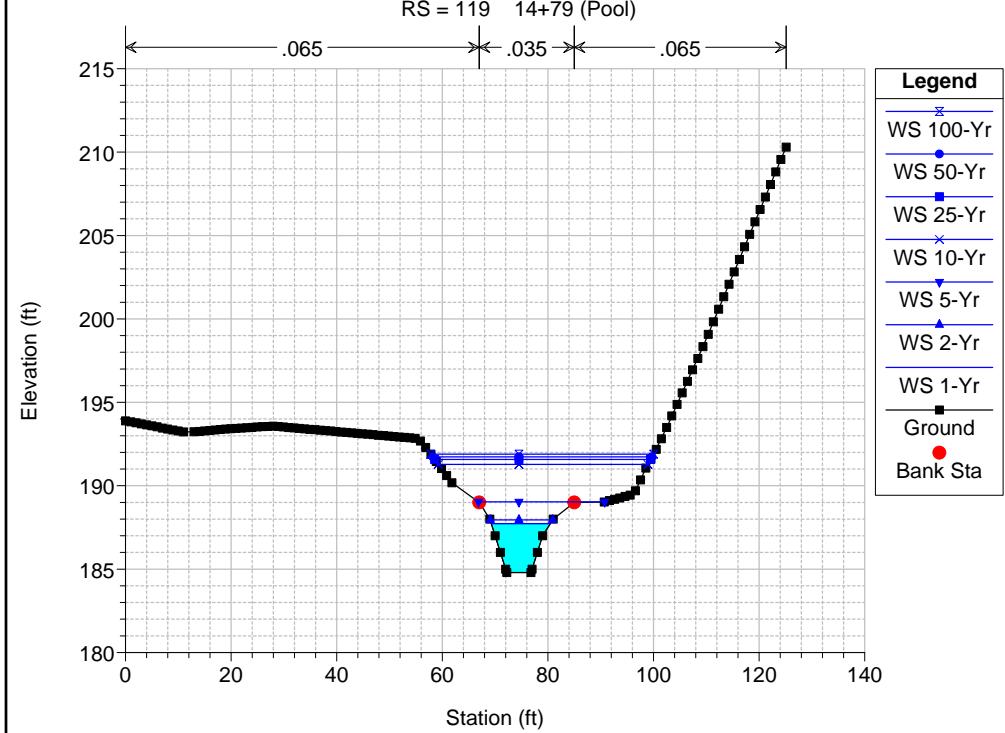




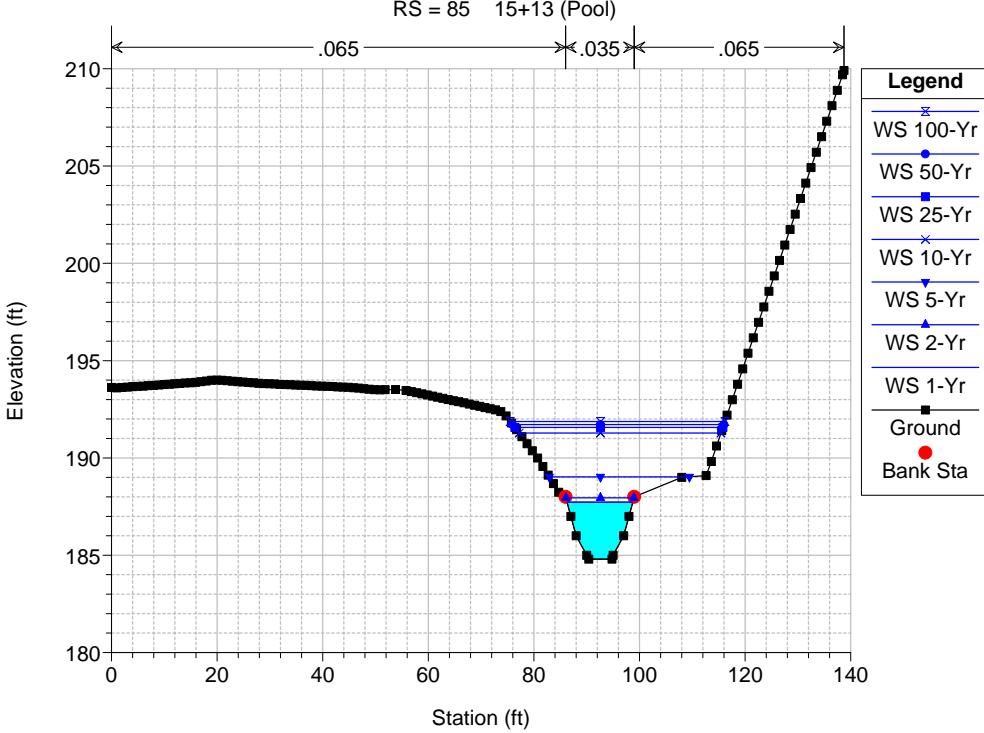




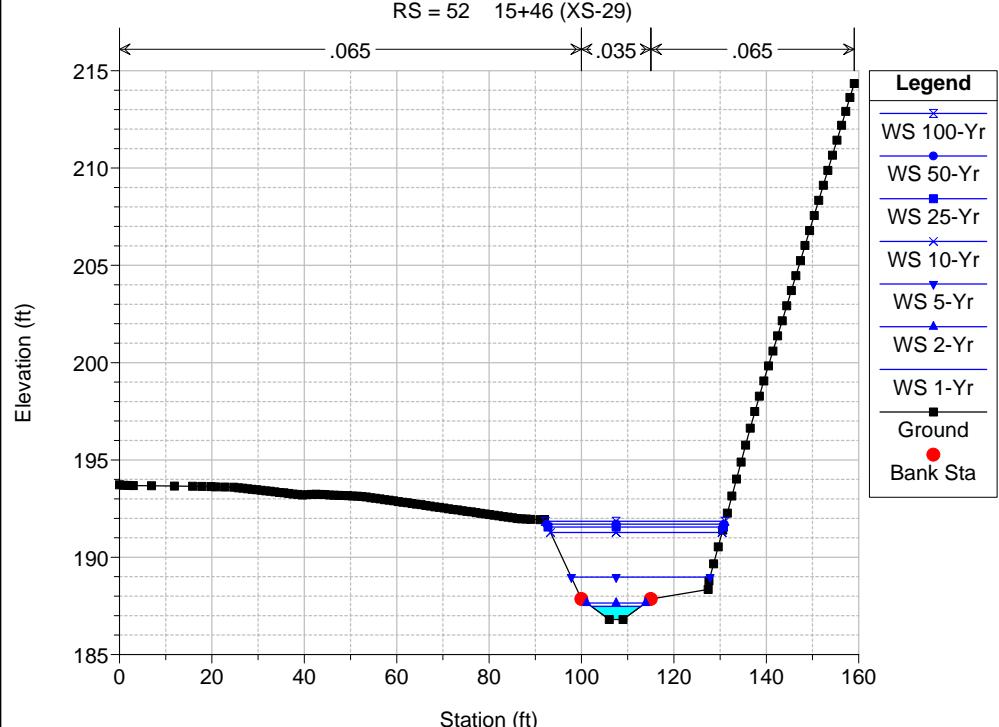
Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013



Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013



Unnamed Trib to Broad Branch RAS Plan: Proposed Broad Branch 6/24/2013



HEC-RAS Plan: Proposed River: Unnamed_Trib Reach: 1

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|-------|-----------|---------|---------|-----------|-----------|-----------|-----------|------------|----------|-----------|-----------|--------------|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 1587 | 1-Yr | 14.20 | 215.00 | 216.45 | | 216.46 | 0.000188 | 0.67 | 21.76 | 19.51 | 0.11 |
| 1 | 1587 | 2-Yr | 19.60 | 215.00 | 216.55 | | 216.56 | 0.000279 | 0.85 | 23.64 | 20.04 | 0.13 |
| 1 | 1587 | 5-Yr | 27.20 | 215.00 | 216.67 | | 216.68 | 0.000404 | 1.09 | 26.02 | 20.73 | 0.16 |
| 1 | 1587 | 10-Yr | 33.20 | 215.00 | 216.75 | | 216.77 | 0.000498 | 1.25 | 27.78 | 21.39 | 0.18 |
| 1 | 1587 | 25-Yr | 41.20 | 215.00 | 216.85 | | 216.88 | 0.000617 | 1.45 | 29.99 | 22.20 | 0.20 |
| 1 | 1587 | 50-Yr | 46.80 | 215.00 | 216.92 | | 216.95 | 0.000695 | 1.58 | 31.47 | 22.72 | 0.21 |
| 1 | 1587 | 100-Yr | 52.90 | 215.00 | 216.98 | | 217.03 | 0.000775 | 1.72 | 33.04 | 23.25 | 0.23 |
| 1 | 1537 | 1-Yr | 14.20 | 213.00 | 216.46 | | 216.46 | 0.000014 | 0.27 | 54.05 | 26.72 | 0.03 |
| 1 | 1537 | 2-Yr | 19.60 | 213.00 | 216.55 | | 216.55 | 0.000023 | 0.35 | 56.65 | 27.30 | 0.04 |
| 1 | 1537 | 5-Yr | 27.20 | 213.00 | 216.67 | | 216.67 | 0.000038 | 0.46 | 59.95 | 28.01 | 0.05 |
| 1 | 1537 | 10-Yr | 33.20 | 213.00 | 216.76 | | 216.76 | 0.000050 | 0.55 | 62.36 | 28.52 | 0.06 |
| 1 | 1537 | 25-Yr | 41.20 | 213.00 | 216.86 | | 216.87 | 0.000068 | 0.65 | 65.36 | 29.14 | 0.07 |
| 1 | 1537 | 50-Yr | 46.80 | 213.00 | 216.93 | | 216.94 | 0.000080 | 0.72 | 67.35 | 29.55 | 0.08 |
| 1 | 1537 | 100-Yr | 52.90 | 213.00 | 217.00 | | 217.01 | 0.000094 | 0.79 | 69.44 | 29.97 | 0.08 |
| 1 | 1427 | 1-Yr | 14.20 | 213.00 | 216.46 | | 216.46 | 0.000004 | 0.15 | 93.70 | 40.22 | 0.02 |
| 1 | 1427 | 2-Yr | 19.60 | 213.00 | 216.55 | | 216.55 | 0.000007 | 0.20 | 97.60 | 40.90 | 0.02 |
| 1 | 1427 | 5-Yr | 27.20 | 213.00 | 216.67 | | 216.67 | 0.000011 | 0.27 | 102.51 | 41.55 | 0.03 |
| 1 | 1427 | 10-Yr | 33.20 | 213.00 | 216.76 | | 216.76 | 0.000015 | 0.32 | 106.06 | 42.02 | 0.03 |
| 1 | 1427 | 25-Yr | 41.20 | 213.00 | 216.86 | | 216.86 | 0.000020 | 0.38 | 110.46 | 42.58 | 0.04 |
| 1 | 1427 | 50-Yr | 46.80 | 213.00 | 216.93 | | 216.93 | 0.000024 | 0.42 | 113.36 | 42.95 | 0.04 |
| 1 | 1427 | 100-Yr | 52.90 | 213.00 | 217.00 | | 217.00 | 0.000028 | 0.46 | 116.38 | 43.33 | 0.05 |
| 1 | 1412 | 1-Yr | 14.20 | 216.00 | 216.42 | | 216.45 | 0.004516 | 1.52 | 9.34 | 23.91 | 0.43 |
| 1 | 1412 | 2-Yr | 19.60 | 216.00 | 216.50 | | 216.55 | 0.004576 | 1.72 | 11.41 | 24.51 | 0.44 |
| 1 | 1412 | 5-Yr | 27.20 | 216.00 | 216.61 | | 216.67 | 0.004599 | 1.94 | 14.04 | 25.25 | 0.46 |
| 1 | 1412 | 10-Yr | 33.20 | 216.00 | 216.68 | | 216.75 | 0.004592 | 2.08 | 15.96 | 25.78 | 0.47 |
| 1 | 1412 | 25-Yr | 41.20 | 216.00 | 216.78 | | 216.85 | 0.004576 | 2.24 | 18.38 | 26.43 | 0.47 |
| 1 | 1412 | 50-Yr | 46.80 | 216.00 | 216.84 | | 216.92 | 0.004563 | 2.34 | 19.99 | 26.85 | 0.48 |
| 1 | 1412 | 100-Yr | 52.90 | 216.00 | 216.90 | | 216.99 | 0.004547 | 2.44 | 21.68 | 27.29 | 0.48 |
| 1 | 1408 | 1-Yr | 14.20 | 216.00 | 216.27 | 216.27 | 216.41 | 0.028310 | 2.91 | 4.88 | 18.64 | 1.00 |
| 1 | 1408 | 2-Yr | 19.60 | 216.00 | 216.34 | 216.34 | 216.50 | 0.026179 | 3.21 | 6.11 | 19.03 | 1.00 |
| 1 | 1408 | 5-Yr | 27.20 | 216.00 | 216.42 | 216.42 | 216.62 | 0.024847 | 3.56 | 7.63 | 19.51 | 1.00 |
| 1 | 1408 | 10-Yr | 33.20 | 216.00 | 216.48 | 216.48 | 216.70 | 0.023978 | 3.79 | 8.76 | 19.85 | 1.01 |
| 1 | 1408 | 25-Yr | 41.20 | 216.00 | 216.55 | 216.55 | 216.80 | 0.022996 | 4.04 | 10.19 | 20.28 | 1.01 |
| 1 | 1408 | 50-Yr | 46.80 | 216.00 | 216.59 | 216.59 | 216.87 | 0.022400 | 4.20 | 11.15 | 20.56 | 1.00 |
| 1 | 1408 | 100-Yr | 52.90 | 216.00 | 216.64 | 216.64 | 216.94 | 0.021790 | 4.35 | 12.17 | 20.86 | 1.00 |
| 1 | 1392 | 1-Yr | 14.20 | 215.00 | 215.44 | | 215.46 | 0.002865 | 1.28 | 11.09 | 25.87 | 0.34 |
| 1 | 1392 | 2-Yr | 19.60 | 215.00 | 215.53 | | 215.56 | 0.002898 | 1.46 | 13.47 | 26.05 | 0.36 |
| 1 | 1392 | 5-Yr | 27.20 | 215.00 | 215.64 | | 215.69 | 0.002893 | 1.65 | 16.48 | 26.29 | 0.37 |
| 1 | 1392 | 10-Yr | 33.20 | 215.00 | 215.72 | | 215.77 | 0.002923 | 1.79 | 18.58 | 26.44 | 0.38 |
| 1 | 1392 | 25-Yr | 41.20 | 215.00 | 216.04 | | 216.08 | 0.001338 | 1.52 | 27.09 | 27.08 | 0.27 |
| 1 | 1392 | 50-Yr | 46.80 | 215.00 | 216.40 | | 216.43 | 0.000635 | 1.26 | 37.09 | 27.81 | 0.19 |

HEC-RAS Plan: Proposed River: Unnamed_Trib Reach: 1 (Continued)

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|-------|-----------|---------|---------|-----------|-----------|-----------|-----------|------------|----------|-----------|-----------|--------------|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 1392 | 100-Yr | 52.90 | 215.00 | 216.68 | | 216.71 | 0.000444 | 1.18 | 44.92 | 28.37 | 0.16 |
| | | | | | | | | | | | | |
| 1 | 1384 | 1-Yr | 14.20 | 212.50 | 215.45 | | 215.45 | 0.000070 | 0.48 | 29.60 | 17.59 | 0.07 |
| 1 | 1384 | 2-Yr | 19.60 | 212.50 | 215.54 | | 215.55 | 0.000117 | 0.63 | 31.28 | 18.34 | 0.08 |
| 1 | 1384 | 5-Yr | 27.20 | 212.50 | 215.66 | | 215.67 | 0.000192 | 0.81 | 33.50 | 19.29 | 0.11 |
| 1 | 1384 | 10-Yr | 33.20 | 212.50 | 215.74 | | 215.76 | 0.000255 | 0.95 | 35.08 | 19.93 | 0.13 |
| 1 | 1384 | 25-Yr | 41.20 | 212.50 | 216.05 | | 216.07 | 0.000257 | 0.99 | 41.61 | 22.25 | 0.13 |
| 1 | 1384 | 50-Yr | 46.80 | 212.50 | 216.41 | | 216.42 | 0.000200 | 0.94 | 49.93 | 24.05 | 0.11 |
| 1 | 1384 | 100-Yr | 52.90 | 212.50 | 216.69 | | 216.70 | 0.000180 | 0.93 | 56.79 | 25.43 | 0.11 |
| | | | | | | | | | | | | |
| 1 | 1376 | 1-Yr | 14.20 | 212.50 | 215.45 | | 215.45 | 0.000055 | 0.44 | 32.54 | 18.59 | 0.06 |
| 1 | 1376 | 2-Yr | 19.60 | 212.50 | 215.54 | | 215.55 | 0.000092 | 0.57 | 34.32 | 19.34 | 0.08 |
| 1 | 1376 | 5-Yr | 27.20 | 212.50 | 215.66 | | 215.67 | 0.000151 | 0.74 | 36.65 | 20.28 | 0.10 |
| 1 | 1376 | 10-Yr | 33.20 | 212.50 | 215.74 | | 215.75 | 0.000202 | 0.87 | 38.32 | 20.93 | 0.11 |
| 1 | 1376 | 25-Yr | 41.20 | 212.50 | 216.05 | | 216.06 | 0.000207 | 0.91 | 45.15 | 23.25 | 0.12 |
| 1 | 1376 | 50-Yr | 46.80 | 212.50 | 216.41 | | 216.42 | 0.000164 | 0.87 | 53.84 | 25.05 | 0.10 |
| 1 | 1376 | 100-Yr | 52.90 | 212.50 | 216.69 | | 216.70 | 0.000149 | 0.87 | 60.97 | 26.43 | 0.10 |
| | | | | | | | | | | | | |
| 1 | 1366 | 1-Yr | 14.20 | 215.00 | 215.38 | | 215.44 | 0.009657 | 2.08 | 6.83 | 19.26 | 0.62 |
| 1 | 1366 | 2-Yr | 19.60 | 215.00 | 215.45 | | 215.54 | 0.010175 | 2.38 | 8.23 | 19.69 | 0.65 |
| 1 | 1366 | 5-Yr | 27.20 | 215.00 | 215.54 | 215.42 | 215.65 | 0.010431 | 2.70 | 10.06 | 20.24 | 0.68 |
| 1 | 1366 | 10-Yr | 33.20 | 215.00 | 215.60 | 215.48 | 215.73 | 0.010904 | 2.95 | 11.27 | 20.60 | 0.70 |
| 1 | 1366 | 25-Yr | 41.20 | 215.00 | 215.98 | | 216.05 | 0.003062 | 2.10 | 19.62 | 22.90 | 0.40 |
| 1 | 1366 | 50-Yr | 46.80 | 215.00 | 216.37 | | 216.41 | 0.001225 | 1.61 | 29.03 | 25.25 | 0.26 |
| 1 | 1366 | 100-Yr | 52.90 | 215.00 | 216.66 | | 216.69 | 0.000799 | 1.45 | 36.51 | 26.96 | 0.22 |
| | | | | | | | | | | | | |
| 1 | 1364 | 1-Yr | 14.20 | 215.00 | 215.27 | 215.27 | 215.41 | 0.028046 | 2.90 | 4.89 | 18.65 | 1.00 |
| 1 | 1364 | 2-Yr | 19.60 | 215.00 | 215.34 | 215.34 | 215.50 | 0.026234 | 3.21 | 6.11 | 19.03 | 1.00 |
| 1 | 1364 | 5-Yr | 27.20 | 215.00 | 215.42 | 215.42 | 215.62 | 0.024676 | 3.56 | 7.65 | 19.51 | 1.00 |
| 1 | 1364 | 10-Yr | 33.20 | 215.00 | 215.48 | 215.48 | 215.70 | 0.023949 | 3.79 | 8.76 | 19.85 | 1.01 |
| 1 | 1364 | 25-Yr | 41.20 | 215.00 | 215.98 | | 216.05 | 0.003134 | 2.12 | 19.47 | 22.86 | 0.40 |
| 1 | 1364 | 50-Yr | 46.80 | 215.00 | 216.37 | | 216.41 | 0.001233 | 1.62 | 28.97 | 25.23 | 0.27 |
| 1 | 1364 | 100-Yr | 52.90 | 215.00 | 216.66 | | 216.69 | 0.000802 | 1.45 | 36.46 | 26.95 | 0.22 |
| | | | | | | | | | | | | |
| 1 | 1354 | 1-Yr | 14.20 | 214.00 | 214.41 | | 214.50 | 0.011935 | 2.42 | 5.87 | 15.48 | 0.69 |
| 1 | 1354 | 2-Yr | 19.60 | 214.00 | 214.53 | | 214.63 | 0.009957 | 2.56 | 7.66 | 16.15 | 0.65 |
| 1 | 1354 | 5-Yr | 27.20 | 214.00 | 215.15 | | 215.18 | 0.001268 | 1.44 | 18.87 | 19.88 | 0.26 |
| 1 | 1354 | 10-Yr | 33.20 | 214.00 | 215.57 | | 215.59 | 0.000611 | 1.19 | 27.82 | 22.42 | 0.19 |
| 1 | 1354 | 25-Yr | 41.20 | 214.00 | 216.01 | | 216.02 | 0.000383 | 1.08 | 38.12 | 25.03 | 0.15 |
| 1 | 1354 | 50-Yr | 46.80 | 214.00 | 216.39 | | 216.40 | 0.000255 | 0.97 | 48.03 | 27.12 | 0.13 |
| 1 | 1354 | 100-Yr | 52.90 | 214.00 | 216.67 | | 216.68 | 0.000212 | 0.95 | 55.95 | 28.68 | 0.12 |
| | | | | | | | | | | | | |
| 1 | 1346 | 1-Yr | 14.60 | 211.50 | 214.47 | | 214.47 | 0.000068 | 0.49 | 29.64 | 16.35 | 0.06 |
| 1 | 1346 | 2-Yr | 20.60 | 211.50 | 214.59 | | 214.60 | 0.000114 | 0.65 | 31.61 | 16.94 | 0.08 |
| 1 | 1346 | 5-Yr | 30.10 | 211.50 | 215.16 | | 215.17 | 0.000116 | 0.71 | 42.16 | 19.97 | 0.09 |
| 1 | 1346 | 10-Yr | 38.20 | 211.50 | 215.58 | | 215.59 | 0.000116 | 0.75 | 50.99 | 22.47 | 0.09 |

HEC-RAS Plan: Proposed River: Unnamed_Trib Reach: 1 (Continued)

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|-------|-----------|---------|---------|-----------|-----------|-----------|-----------|------------|----------|-----------|-----------|--------------|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 1346 | 25-Yr | 47.80 | 211.50 | 216.01 | | 216.02 | 0.000113 | 0.78 | 61.24 | 25.06 | 0.09 |
| 1 | 1346 | 50-Yr | 53.90 | 211.50 | 216.39 | | 216.40 | 0.000098 | 0.76 | 71.15 | 27.33 | 0.08 |
| 1 | 1346 | 100-Yr | 59.20 | 211.50 | 216.67 | | 216.68 | 0.000090 | 0.75 | 79.13 | 29.03 | 0.08 |
| 1 | 1338 | 1-Yr | 14.60 | 211.50 | 214.47 | | 214.47 | 0.000054 | 0.45 | 32.72 | 17.82 | 0.06 |
| 1 | 1338 | 2-Yr | 20.60 | 211.50 | 214.59 | | 214.59 | 0.000092 | 0.59 | 34.87 | 18.53 | 0.08 |
| 1 | 1338 | 5-Yr | 30.10 | 211.50 | 215.16 | | 215.17 | 0.000094 | 0.65 | 46.48 | 21.97 | 0.08 |
| 1 | 1338 | 10-Yr | 38.20 | 211.50 | 215.58 | | 215.59 | 0.000093 | 0.68 | 56.15 | 24.47 | 0.08 |
| 1 | 1338 | 25-Yr | 47.80 | 211.50 | 216.01 | | 216.02 | 0.000091 | 0.71 | 67.26 | 27.06 | 0.08 |
| 1 | 1338 | 50-Yr | 53.90 | 211.50 | 216.39 | | 216.40 | 0.000079 | 0.69 | 77.93 | 29.33 | 0.07 |
| 1 | 1338 | 100-Yr | 59.20 | 211.50 | 216.67 | | 216.68 | 0.000072 | 0.68 | 86.48 | 31.03 | 0.07 |
| 1 | 1330 | 1-Yr | 14.60 | 214.00 | 214.39 | 214.29 | 214.47 | 0.010013 | 2.17 | 6.74 | 18.35 | 0.63 |
| 1 | 1330 | 2-Yr | 20.60 | 214.00 | 214.50 | | 214.58 | 0.008984 | 2.37 | 8.68 | 18.98 | 0.62 |
| 1 | 1330 | 5-Yr | 30.10 | 214.00 | 215.14 | | 215.16 | 0.001107 | 1.37 | 22.04 | 22.81 | 0.24 |
| 1 | 1330 | 10-Yr | 38.20 | 214.00 | 215.56 | | 215.58 | 0.000578 | 1.18 | 32.28 | 25.37 | 0.18 |
| 1 | 1330 | 25-Yr | 47.80 | 214.00 | 216.00 | | 216.02 | 0.000372 | 1.09 | 43.91 | 27.98 | 0.15 |
| 1 | 1330 | 50-Yr | 53.90 | 214.00 | 216.38 | | 216.39 | 0.000248 | 0.98 | 55.04 | 30.27 | 0.13 |
| 1 | 1330 | 100-Yr | 59.20 | 214.00 | 216.66 | | 216.68 | 0.000196 | 0.93 | 63.92 | 31.98 | 0.12 |
| 1 | 1328 | 1-Yr | 14.60 | 214.00 | 214.29 | 214.29 | 214.43 | 0.027557 | 2.98 | 4.90 | 17.74 | 1.00 |
| 1 | 1328 | 2-Yr | 20.60 | 214.00 | 214.46 | | 214.56 | 0.011364 | 2.56 | 8.05 | 18.78 | 0.69 |
| 1 | 1328 | 5-Yr | 30.10 | 214.00 | 215.13 | | 215.16 | 0.001114 | 1.37 | 21.99 | 22.80 | 0.25 |
| 1 | 1328 | 10-Yr | 38.20 | 214.00 | 215.56 | | 215.58 | 0.000580 | 1.18 | 32.25 | 25.36 | 0.19 |
| 1 | 1328 | 25-Yr | 47.80 | 214.00 | 216.00 | | 216.01 | 0.000372 | 1.09 | 43.89 | 27.98 | 0.15 |
| 1 | 1328 | 50-Yr | 53.90 | 214.00 | 216.38 | | 216.39 | 0.000248 | 0.98 | 55.03 | 30.27 | 0.13 |
| 1 | 1328 | 100-Yr | 59.20 | 214.00 | 216.66 | | 216.68 | 0.000196 | 0.93 | 63.90 | 31.98 | 0.12 |
| 1 | 1316 | 1-Yr | 14.60 | 213.00 | 214.05 | | 214.06 | 0.000681 | 0.99 | 14.80 | 17.28 | 0.19 |
| 1 | 1316 | 2-Yr | 20.60 | 213.00 | 214.51 | | 214.53 | 0.000356 | 0.88 | 23.52 | 20.08 | 0.14 |
| 1 | 1316 | 5-Yr | 30.10 | 213.00 | 215.14 | | 215.15 | 0.000206 | 0.81 | 37.33 | 23.85 | 0.11 |
| 1 | 1316 | 10-Yr | 38.20 | 213.00 | 215.56 | | 215.57 | 0.000166 | 0.80 | 47.95 | 26.39 | 0.10 |
| 1 | 1316 | 25-Yr | 47.80 | 213.00 | 216.00 | | 216.01 | 0.000140 | 0.80 | 59.99 | 29.00 | 0.10 |
| 1 | 1316 | 50-Yr | 53.90 | 213.00 | 216.38 | | 216.39 | 0.000109 | 0.75 | 71.45 | 31.10 | 0.09 |
| 1 | 1316 | 100-Yr | 59.20 | 213.00 | 216.67 | | 216.67 | 0.000095 | 0.74 | 80.52 | 32.66 | 0.08 |
| 1 | 1308 | 1-Yr | 14.60 | 210.50 | 214.06 | | 214.06 | 0.000031 | 0.36 | 40.61 | 20.22 | 0.04 |
| 1 | 1308 | 2-Yr | 20.60 | 210.50 | 214.52 | | 214.52 | 0.000034 | 0.41 | 50.42 | 22.08 | 0.05 |
| 1 | 1308 | 5-Yr | 30.10 | 210.50 | 215.15 | | 215.15 | 0.000037 | 0.46 | 65.07 | 24.88 | 0.05 |
| 1 | 1308 | 10-Yr | 38.20 | 210.50 | 215.57 | | 215.57 | 0.000040 | 0.50 | 76.11 | 27.41 | 0.05 |
| 1 | 1308 | 25-Yr | 47.80 | 210.50 | 216.00 | | 216.01 | 0.000042 | 0.54 | 88.59 | 30.02 | 0.06 |
| 1 | 1308 | 50-Yr | 53.90 | 210.50 | 216.38 | | 216.39 | 0.000039 | 0.54 | 100.45 | 32.30 | 0.05 |
| 1 | 1308 | 100-Yr | 59.20 | 210.50 | 216.67 | | 216.67 | 0.000037 | 0.54 | 109.87 | 34.01 | 0.05 |
| 1 | 1296 | 1-Yr | 18.10 | 210.50 | 214.05 | | 214.06 | 0.000045 | 0.43 | 42.14 | 21.22 | 0.05 |
| 1 | 1296 | 2-Yr | 25.80 | 210.50 | 214.52 | | 214.52 | 0.000049 | 0.49 | 52.40 | 23.07 | 0.06 |

HEC-RAS Plan: Proposed River: Unnamed_Trib Reach: 1 (Continued)

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|-------|-----------|---------|---------|-----------|-----------|-----------|-----------|------------|----------|-----------|-----------|--------------|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 1296 | 5-Yr | 38.30 | 210.50 | 215.14 | | 215.15 | 0.000055 | 0.57 | 67.67 | 26.01 | 0.06 |
| 1 | 1296 | 10-Yr | 48.90 | 210.50 | 215.57 | | 215.57 | 0.000060 | 0.62 | 79.26 | 28.96 | 0.07 |
| 1 | 1296 | 25-Yr | 60.80 | 210.50 | 216.00 | | 216.01 | 0.000064 | 0.66 | 92.49 | 32.00 | 0.07 |
| 1 | 1296 | 50-Yr | 67.80 | 210.50 | 216.38 | | 216.39 | 0.000057 | 0.64 | 105.12 | 34.28 | 0.06 |
| 1 | 1296 | 100-Yr | 73.70 | 210.50 | 216.67 | | 216.67 | 0.000053 | 0.64 | 115.12 | 35.99 | 0.06 |
| | | | | | | | | | | | | |
| 1 | 1285 | 1-Yr | 18.10 | 213.00 | 214.04 | | 214.05 | 0.000430 | 0.82 | 22.07 | 24.22 | 0.15 |
| 1 | 1285 | 2-Yr | 25.80 | 213.00 | 214.51 | | 214.52 | 0.000238 | 0.76 | 33.91 | 26.55 | 0.12 |
| 1 | 1285 | 5-Yr | 38.30 | 213.00 | 215.14 | | 215.15 | 0.000152 | 0.74 | 51.58 | 29.83 | 0.10 |
| 1 | 1285 | 10-Yr | 48.90 | 213.00 | 215.56 | | 215.57 | 0.000130 | 0.76 | 64.73 | 32.37 | 0.09 |
| 1 | 1285 | 25-Yr | 60.80 | 213.00 | 216.00 | | 216.01 | 0.000114 | 0.77 | 79.37 | 34.98 | 0.09 |
| 1 | 1285 | 50-Yr | 67.80 | 213.00 | 216.38 | | 216.39 | 0.000090 | 0.73 | 93.16 | 37.27 | 0.08 |
| 1 | 1285 | 100-Yr | 73.70 | 213.00 | 216.66 | | 216.67 | 0.000078 | 0.71 | 104.02 | 38.98 | 0.08 |
| | | | | | | | | | | | | |
| 1 | 1283 | 1-Yr | 18.10 | 213.00 | 214.04 | | 214.05 | 0.000432 | 0.82 | 22.05 | 24.22 | 0.15 |
| 1 | 1283 | 2-Yr | 25.80 | 213.00 | 214.51 | | 214.52 | 0.000238 | 0.76 | 33.89 | 26.55 | 0.12 |
| 1 | 1283 | 5-Yr | 38.30 | 213.00 | 215.14 | | 215.15 | 0.000153 | 0.74 | 51.58 | 29.83 | 0.10 |
| 1 | 1283 | 10-Yr | 48.90 | 213.00 | 215.56 | | 215.57 | 0.000130 | 0.76 | 64.72 | 32.37 | 0.09 |
| 1 | 1283 | 25-Yr | 60.80 | 213.00 | 216.00 | | 216.01 | 0.000114 | 0.77 | 79.36 | 34.98 | 0.09 |
| 1 | 1283 | 50-Yr | 67.80 | 213.00 | 216.38 | | 216.39 | 0.000090 | 0.73 | 93.15 | 37.27 | 0.08 |
| 1 | 1283 | 100-Yr | 73.70 | 213.00 | 216.66 | | 216.67 | 0.000079 | 0.71 | 104.02 | 38.98 | 0.08 |
| | | | | | | | | | | | | |
| 1 | 1266 | 1-Yr | 18.10 | 211.00 | 214.05 | | 214.05 | 0.000008 | 0.22 | 84.45 | 39.30 | 0.02 |
| 1 | 1266 | 2-Yr | 25.80 | 211.00 | 214.52 | | 214.52 | 0.000009 | 0.26 | 103.39 | 42.09 | 0.03 |
| 1 | 1266 | 5-Yr | 38.30 | 211.00 | 215.14 | | 215.14 | 0.000011 | 0.32 | 131.01 | 46.00 | 0.03 |
| 1 | 1266 | 10-Yr | 48.90 | 211.00 | 215.57 | | 215.57 | 0.000012 | 0.36 | 151.07 | 48.96 | 0.03 |
| 1 | 1266 | 25-Yr | 60.80 | 211.00 | 216.00 | | 216.00 | 0.000012 | 0.40 | 173.01 | 52.00 | 0.03 |
| 1 | 1266 | 50-Yr | 67.80 | 211.00 | 216.38 | | 216.38 | 0.000011 | 0.41 | 193.35 | 54.67 | 0.03 |
| 1 | 1266 | 100-Yr | 73.70 | 211.00 | 216.67 | | 216.67 | 0.000011 | 0.41 | 209.19 | 56.66 | 0.03 |
| | | | | | | | | | | | | |
| 1 | 1250 | 1-Yr | 19.30 | 209.00 | 214.05 | | 214.05 | 0.000002 | 0.12 | 161.22 | 54.30 | 0.01 |
| 1 | 1250 | 2-Yr | 27.40 | 209.00 | 214.52 | | 214.52 | 0.000003 | 0.15 | 187.14 | 57.09 | 0.01 |
| 1 | 1250 | 5-Yr | 40.90 | 209.00 | 215.14 | | 215.14 | 0.000003 | 0.18 | 224.18 | 60.86 | 0.02 |
| 1 | 1250 | 10-Yr | 52.40 | 209.00 | 215.57 | | 215.57 | 0.000004 | 0.21 | 250.44 | 63.40 | 0.02 |
| 1 | 1250 | 25-Yr | 65.10 | 209.00 | 216.00 | | 216.00 | 0.000004 | 0.24 | 278.58 | 66.01 | 0.02 |
| 1 | 1250 | 50-Yr | 72.70 | 209.00 | 216.38 | | 216.38 | 0.000004 | 0.24 | 304.18 | 68.29 | 0.02 |
| 1 | 1250 | 100-Yr | 79.00 | 209.00 | 216.67 | | 216.67 | 0.000004 | 0.25 | 323.87 | 70.00 | 0.02 |
| | | | | | | | | | | | | |
| 1 | 1220 | 1-Yr | 19.30 | 209.00 | 214.05 | | 214.05 | 0.000001 | 0.08 | 238.87 | 67.35 | 0.01 |
| 1 | 1220 | 2-Yr | 27.40 | 209.00 | 214.52 | | 214.52 | 0.000001 | 0.10 | 270.99 | 70.61 | 0.01 |
| 1 | 1220 | 5-Yr | 40.90 | 209.00 | 215.14 | | 215.14 | 0.000001 | 0.13 | 316.70 | 74.86 | 0.01 |
| 1 | 1220 | 10-Yr | 52.40 | 209.00 | 215.57 | | 215.57 | 0.000002 | 0.15 | 348.88 | 77.40 | 0.01 |
| 1 | 1220 | 25-Yr | 65.10 | 209.00 | 216.00 | | 216.00 | 0.000002 | 0.17 | 383.11 | 80.01 | 0.01 |
| 1 | 1220 | 50-Yr | 72.70 | 209.00 | 216.38 | | 216.38 | 0.000002 | 0.18 | 414.02 | 82.10 | 0.01 |
| 1 | 1220 | 100-Yr | 79.00 | 209.00 | 216.67 | | 216.67 | 0.000002 | 0.18 | 437.61 | 83.67 | 0.01 |

HEC-RAS Plan: Proposed River: Unnamed_Trib Reach: 1 (Continued)

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|-------|-----------|---------|---------|-----------|-----------|-----------|-----------|------------|----------|-----------|-----------|--------------|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 1205 | 1-Yr | 19.10 | 212.00 | 214.04 | 212.51 | 214.05 | 0.000138 | 0.74 | 39.38 | 44.59 | 0.09 |
| 1 | 1205 | 2-Yr | 27.30 | 212.00 | 214.51 | 212.64 | 214.52 | 0.000104 | 0.74 | 61.70 | 51.12 | 0.08 |
| 1 | 1205 | 5-Yr | 39.40 | 212.00 | 215.14 | 212.81 | 215.14 | 0.000074 | 0.73 | 96.60 | 59.52 | 0.07 |
| 1 | 1205 | 10-Yr | 47.80 | 212.00 | 215.56 | 212.92 | 215.57 | 0.000060 | 0.72 | 122.79 | 64.17 | 0.07 |
| 1 | 1205 | 25-Yr | 55.00 | 212.00 | 216.00 | 213.01 | 216.00 | 0.000046 | 0.68 | 151.80 | 68.97 | 0.06 |
| 1 | 1205 | 50-Yr | 60.50 | 212.00 | 216.38 | 213.08 | 216.38 | 0.000036 | 0.64 | 178.55 | 71.02 | 0.05 |
| 1 | 1205 | 100-Yr | 64.30 | 212.00 | 216.66 | 213.13 | 216.67 | 0.000030 | 0.61 | 199.01 | 72.54 | 0.05 |
| 1 | 1147 | Culvert | | | | | | | | | | |
| 1 | 1088 | 1-Yr | 19.10 | 210.00 | 210.58 | | 210.69 | 0.009723 | 2.61 | 7.31 | 14.68 | 0.65 |
| 1 | 1088 | 2-Yr | 27.30 | 210.00 | 210.76 | | 210.87 | 0.007761 | 2.72 | 10.04 | 15.97 | 0.60 |
| 1 | 1088 | 5-Yr | 39.40 | 210.00 | 211.00 | | 211.12 | 0.006091 | 2.81 | 14.03 | 17.70 | 0.56 |
| 1 | 1088 | 10-Yr | 47.80 | 210.00 | 211.15 | | 211.27 | 0.005359 | 2.85 | 16.77 | 18.79 | 0.53 |
| 1 | 1088 | 25-Yr | 55.00 | 210.00 | 211.27 | | 211.40 | 0.004861 | 2.87 | 19.15 | 19.69 | 0.51 |
| 1 | 1088 | 50-Yr | 60.50 | 210.00 | 211.34 | | 211.48 | 0.004774 | 2.94 | 20.61 | 20.22 | 0.51 |
| 1 | 1088 | 100-Yr | 64.30 | 210.00 | 211.41 | | 211.54 | 0.004497 | 2.93 | 21.98 | 20.71 | 0.50 |
| 1 | 1043 | 1-Yr | 19.10 | 209.00 | 210.62 | | 210.62 | 0.000108 | 0.48 | 39.70 | 34.69 | 0.08 |
| 1 | 1043 | 2-Yr | 27.30 | 209.00 | 210.79 | | 210.80 | 0.000142 | 0.59 | 46.00 | 35.76 | 0.09 |
| 1 | 1043 | 5-Yr | 39.40 | 209.00 | 211.03 | | 211.04 | 0.000176 | 0.72 | 54.60 | 37.18 | 0.10 |
| 1 | 1043 | 10-Yr | 47.80 | 209.00 | 211.18 | | 211.19 | 0.000192 | 0.79 | 60.26 | 38.08 | 0.11 |
| 1 | 1043 | 25-Yr | 55.00 | 209.00 | 211.30 | | 211.31 | 0.000203 | 0.85 | 64.99 | 38.82 | 0.12 |
| 1 | 1043 | 50-Yr | 60.50 | 209.00 | 211.38 | | 211.39 | 0.000216 | 0.89 | 67.89 | 39.26 | 0.12 |
| 1 | 1043 | 100-Yr | 64.30 | 209.00 | 211.44 | | 211.46 | 0.000218 | 0.91 | 70.50 | 39.66 | 0.12 |
| 1 | 1019 | 1-Yr | 19.10 | 206.50 | 210.62 | | 210.62 | 0.000006 | 0.16 | 116.10 | 54.70 | 0.02 |
| 1 | 1019 | 2-Yr | 27.30 | 206.50 | 210.80 | | 210.80 | 0.000009 | 0.22 | 126.02 | 55.78 | 0.03 |
| 1 | 1019 | 5-Yr | 39.40 | 206.50 | 211.03 | | 211.03 | 0.000014 | 0.28 | 139.42 | 57.20 | 0.03 |
| 1 | 1019 | 10-Yr | 47.80 | 206.50 | 211.18 | | 211.19 | 0.000017 | 0.32 | 148.13 | 58.11 | 0.04 |
| 1 | 1019 | 25-Yr | 55.00 | 206.50 | 211.31 | | 211.31 | 0.000019 | 0.35 | 155.37 | 58.85 | 0.04 |
| 1 | 1019 | 50-Yr | 60.50 | 206.50 | 211.38 | | 211.39 | 0.000022 | 0.38 | 159.79 | 59.30 | 0.04 |
| 1 | 1019 | 100-Yr | 64.30 | 206.50 | 211.45 | | 211.45 | 0.000023 | 0.39 | 163.73 | 59.70 | 0.04 |
| 1 | 952 | 1-Yr | 14.90 | 206.50 | 210.62 | 207.15 | 210.62 | 0.000007 | 0.17 | 88.89 | 54.95 | 0.02 |
| 1 | 952 | 2-Yr | 22.80 | 206.50 | 210.80 | 207.33 | 210.80 | 0.000012 | 0.24 | 99.08 | 58.71 | 0.03 |
| 1 | 952 | 5-Yr | 35.40 | 206.50 | 211.03 | 207.56 | 211.03 | 0.000020 | 0.34 | 113.56 | 63.68 | 0.04 |
| 1 | 952 | 10-Yr | 44.80 | 206.50 | 211.18 | 207.70 | 211.19 | 0.000026 | 0.40 | 123.39 | 66.85 | 0.04 |
| 1 | 952 | 25-Yr | 53.10 | 206.50 | 211.31 | 207.81 | 211.31 | 0.000031 | 0.45 | 131.79 | 69.43 | 0.05 |
| 1 | 952 | 50-Yr | 58.80 | 206.50 | 211.38 | 207.88 | 211.38 | 0.000034 | 0.48 | 137.02 | 71.00 | 0.05 |
| 1 | 952 | 100-Yr | 63.80 | 206.50 | 211.45 | 207.95 | 211.45 | 0.000037 | 0.51 | 141.75 | 72.38 | 0.05 |
| 1 | 939 | 1-Yr | 14.90 | 209.00 | 210.62 | 209.25 | 210.62 | 0.000025 | 0.26 | 60.84 | 54.93 | 0.04 |
| 1 | 939 | 2-Yr | 22.80 | 209.00 | 210.79 | 209.32 | 210.80 | 0.000038 | 0.35 | 71.00 | 58.68 | 0.05 |
| 1 | 939 | 5-Yr | 35.40 | 209.00 | 211.03 | 209.42 | 211.03 | 0.000055 | 0.46 | 85.42 | 63.64 | 0.06 |
| 1 | 939 | 10-Yr | 44.80 | 209.00 | 211.18 | 209.49 | 211.18 | 0.000066 | 0.53 | 95.20 | 66.79 | 0.07 |

HEC-RAS Plan: Proposed River: Unnamed_Trib Reach: 1 (Continued)

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|-------|-----------|---------|---------|-----------|-----------|-----------|-----------|------------|----------|-----------|-----------|--------------|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 939 | 25-Yr | 53.10 | 209.00 | 211.30 | 209.54 | 211.31 | 0.000074 | 0.59 | 103.56 | 69.37 | 0.07 |
| 1 | 939 | 50-Yr | 58.80 | 209.00 | 211.38 | 209.58 | 211.38 | 0.000080 | 0.63 | 108.77 | 70.92 | 0.08 |
| 1 | 939 | 100-Yr | 63.80 | 209.00 | 211.44 | 209.60 | 211.45 | 0.000085 | 0.66 | 113.47 | 72.30 | 0.08 |
| 1 | 932 | 1-Yr | 14.90 | 210.00 | 210.39 | 210.39 | 210.56 | 0.026031 | 3.35 | 4.45 | 12.91 | 1.00 |
| 1 | 932 | 2-Yr | 22.80 | 210.00 | 210.51 | 210.51 | 210.73 | 0.023188 | 3.72 | 6.12 | 13.85 | 0.99 |
| 1 | 932 | 5-Yr | 35.40 | 210.00 | 210.67 | 210.67 | 210.95 | 0.021698 | 4.21 | 8.41 | 15.04 | 0.99 |
| 1 | 932 | 10-Yr | 44.80 | 210.00 | 210.78 | 210.78 | 211.09 | 0.020836 | 4.48 | 10.01 | 15.82 | 0.99 |
| 1 | 932 | 25-Yr | 53.10 | 210.00 | 210.85 | 210.85 | 211.20 | 0.021099 | 4.74 | 11.20 | 16.37 | 1.01 |
| 1 | 932 | 50-Yr | 58.80 | 210.00 | 210.91 | 210.91 | 211.27 | 0.019952 | 4.80 | 12.25 | 16.85 | 0.99 |
| 1 | 932 | 100-Yr | 63.80 | 210.00 | 210.95 | 210.95 | 211.33 | 0.020005 | 4.93 | 12.95 | 17.15 | 1.00 |
| 1 | 930 | 1-Yr | 14.90 | 208.00 | 208.88 | | 208.92 | 0.002382 | 1.72 | 8.67 | 10.76 | 0.34 |
| 1 | 930 | 2-Yr | 22.80 | 208.00 | 209.03 | | 209.11 | 0.003240 | 2.21 | 10.33 | 11.09 | 0.40 |
| 1 | 930 | 5-Yr | 35.40 | 208.00 | 209.21 | | 209.34 | 0.004391 | 2.88 | 12.34 | 11.62 | 0.48 |
| 1 | 930 | 10-Yr | 44.80 | 208.00 | 209.30 | | 209.48 | 0.005308 | 3.35 | 13.49 | 11.91 | 0.54 |
| 1 | 930 | 25-Yr | 53.10 | 208.00 | 209.37 | | 209.59 | 0.006244 | 3.77 | 14.28 | 12.11 | 0.59 |
| 1 | 930 | 50-Yr | 58.80 | 208.00 | 209.40 | | 209.66 | 0.006996 | 4.06 | 14.70 | 12.21 | 0.62 |
| 1 | 930 | 100-Yr | 63.80 | 208.00 | 209.43 | | 209.72 | 0.007710 | 4.32 | 15.02 | 12.29 | 0.66 |
| 1 | 928 | 1-Yr | 14.90 | 206.00 | 208.90 | | 208.91 | 0.000125 | 0.68 | 21.95 | 10.81 | 0.08 |
| 1 | 928 | 2-Yr | 22.80 | 206.00 | 209.07 | | 209.08 | 0.000231 | 0.96 | 23.78 | 11.21 | 0.11 |
| 1 | 928 | 5-Yr | 35.40 | 206.00 | 209.27 | | 209.30 | 0.000413 | 1.36 | 26.12 | 11.82 | 0.16 |
| 1 | 928 | 10-Yr | 44.80 | 206.00 | 209.39 | | 209.43 | 0.000561 | 1.64 | 27.55 | 12.18 | 0.18 |
| 1 | 928 | 25-Yr | 53.10 | 206.00 | 209.48 | | 209.53 | 0.000701 | 1.87 | 28.63 | 12.44 | 0.21 |
| 1 | 928 | 50-Yr | 58.80 | 206.00 | 209.53 | | 209.60 | 0.000803 | 2.03 | 29.28 | 12.60 | 0.22 |
| 1 | 928 | 100-Yr | 63.80 | 206.00 | 209.57 | | 209.65 | 0.000896 | 2.17 | 29.82 | 12.72 | 0.23 |
| 1 | 924 | 1-Yr | 14.90 | 206.00 | 208.90 | | 208.91 | 0.000105 | 0.62 | 23.86 | 11.81 | 0.08 |
| 1 | 924 | 2-Yr | 22.80 | 206.00 | 209.07 | | 209.08 | 0.000193 | 0.88 | 25.86 | 12.28 | 0.11 |
| 1 | 924 | 5-Yr | 35.40 | 206.00 | 209.27 | | 209.30 | 0.000344 | 1.25 | 28.45 | 13.10 | 0.14 |
| 1 | 924 | 10-Yr | 44.80 | 206.00 | 209.40 | | 209.43 | 0.000466 | 1.50 | 30.06 | 13.58 | 0.17 |
| 1 | 924 | 25-Yr | 53.10 | 206.00 | 209.48 | | 209.53 | 0.000581 | 1.72 | 31.28 | 13.94 | 0.19 |
| 1 | 924 | 50-Yr | 58.80 | 206.00 | 209.54 | | 209.59 | 0.000665 | 1.87 | 32.02 | 14.15 | 0.20 |
| 1 | 924 | 100-Yr | 63.80 | 206.00 | 209.58 | | 209.64 | 0.000741 | 1.99 | 32.63 | 14.32 | 0.21 |
| 1 | 919 | 1-Yr | 14.90 | 206.00 | 208.91 | | 208.91 | 0.000072 | 0.50 | 29.70 | 15.84 | 0.06 |
| 1 | 919 | 2-Yr | 22.80 | 206.00 | 209.07 | | 209.08 | 0.000133 | 0.70 | 32.56 | 18.90 | 0.09 |
| 1 | 919 | 5-Yr | 35.40 | 206.00 | 209.28 | | 209.30 | 0.000228 | 0.98 | 37.26 | 28.65 | 0.12 |
| 1 | 919 | 10-Yr | 44.80 | 206.00 | 209.40 | | 209.42 | 0.000299 | 1.17 | 41.33 | 37.39 | 0.14 |
| 1 | 919 | 25-Yr | 53.10 | 206.00 | 209.50 | | 209.52 | 0.000363 | 1.32 | 45.07 | 43.68 | 0.15 |
| 1 | 919 | 50-Yr | 58.80 | 206.00 | 209.55 | | 209.58 | 0.000408 | 1.42 | 47.56 | 46.59 | 0.16 |
| 1 | 919 | 100-Yr | 63.80 | 206.00 | 209.60 | | 209.63 | 0.000446 | 1.51 | 49.73 | 48.61 | 0.17 |
| 1 | 916 | 1-Yr | 14.90 | 208.00 | 208.71 | 208.71 | 208.89 | 0.026290 | 3.45 | 4.32 | 12.41 | 1.02 |
| 1 | 916 | 2-Yr | 22.80 | 208.00 | 208.84 | 208.84 | 209.06 | 0.022412 | 3.76 | 6.26 | 16.16 | 0.98 |

HEC-RAS Plan: Proposed River: Unnamed_Trib Reach: 1 (Continued)

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|-------|-----------|---------|---------|-----------|-----------|-----------|-----------|------------|----------|-----------|-----------|--------------|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 916 | 5-Yr | 35.40 | 208.00 | 209.00 | 209.00 | 209.27 | 0.020027 | 4.20 | 9.19 | 21.34 | 0.97 |
| 1 | 916 | 10-Yr | 44.80 | 208.00 | 209.11 | 209.11 | 209.40 | 0.017155 | 4.37 | 11.99 | 28.82 | 0.92 |
| 1 | 916 | 25-Yr | 53.10 | 208.00 | 209.20 | 209.20 | 209.49 | 0.015641 | 4.51 | 14.71 | 34.79 | 0.90 |
| 1 | 916 | 50-Yr | 58.80 | 208.00 | 209.25 | 209.25 | 209.55 | 0.014579 | 4.56 | 16.83 | 38.81 | 0.87 |
| 1 | 916 | 100-Yr | 63.80 | 208.00 | 209.29 | 209.29 | 209.60 | 0.014448 | 4.67 | 18.33 | 41.21 | 0.88 |
| | | | | | | | | | | | | |
| 1 | 911 | 1-Yr | 14.90 | 205.00 | 207.88 | | 207.89 | 0.000117 | 0.65 | 22.94 | 11.50 | 0.08 |
| 1 | 911 | 2-Yr | 22.80 | 205.00 | 208.05 | | 208.06 | 0.000217 | 0.92 | 24.85 | 11.59 | 0.11 |
| 1 | 911 | 5-Yr | 35.40 | 205.00 | 208.27 | | 208.30 | 0.000393 | 1.29 | 27.42 | 11.71 | 0.15 |
| 1 | 911 | 10-Yr | 44.80 | 205.00 | 208.41 | | 208.45 | 0.000533 | 1.54 | 29.05 | 11.79 | 0.17 |
| 1 | 911 | 25-Yr | 53.10 | 205.00 | 208.52 | | 208.57 | 0.000657 | 1.75 | 30.39 | 13.00 | 0.19 |
| 1 | 911 | 50-Yr | 58.80 | 205.00 | 208.59 | | 208.64 | 0.000740 | 1.88 | 31.36 | 14.42 | 0.20 |
| 1 | 911 | 100-Yr | 63.80 | 205.00 | 208.65 | | 208.71 | 0.000813 | 2.00 | 32.24 | 15.60 | 0.21 |
| | | | | | | | | | | | | |
| 1 | 907 | 1-Yr | 14.90 | 205.00 | 207.88 | | 207.89 | 0.000082 | 0.57 | 25.93 | 11.48 | 0.07 |
| 1 | 907 | 2-Yr | 22.80 | 205.00 | 208.05 | | 208.06 | 0.000156 | 0.82 | 27.84 | 11.57 | 0.09 |
| 1 | 907 | 5-Yr | 35.40 | 205.00 | 208.27 | | 208.29 | 0.000293 | 1.16 | 30.41 | 12.03 | 0.13 |
| 1 | 907 | 10-Yr | 44.80 | 205.00 | 208.41 | | 208.44 | 0.000399 | 1.40 | 32.32 | 15.15 | 0.15 |
| 1 | 907 | 25-Yr | 53.10 | 205.00 | 208.52 | | 208.56 | 0.000495 | 1.59 | 34.11 | 17.31 | 0.17 |
| 1 | 907 | 50-Yr | 58.80 | 205.00 | 208.59 | | 208.64 | 0.000560 | 1.71 | 35.39 | 19.49 | 0.18 |
| 1 | 907 | 100-Yr | 63.80 | 205.00 | 208.65 | | 208.70 | 0.000614 | 1.82 | 36.66 | 23.38 | 0.19 |
| | | | | | | | | | | | | |
| 1 | 902 | 1-Yr | 14.90 | 205.00 | 207.88 | | 207.89 | 0.000061 | 0.51 | 29.00 | 11.63 | 0.06 |
| 1 | 902 | 2-Yr | 22.80 | 205.00 | 208.05 | | 208.06 | 0.000118 | 0.74 | 30.95 | 11.75 | 0.08 |
| 1 | 902 | 5-Yr | 35.40 | 205.00 | 208.27 | | 208.29 | 0.000223 | 1.05 | 34.26 | 17.58 | 0.11 |
| 1 | 902 | 10-Yr | 44.80 | 205.00 | 208.41 | | 208.44 | 0.000306 | 1.26 | 36.90 | 21.07 | 0.13 |
| 1 | 902 | 25-Yr | 53.10 | 205.00 | 208.52 | | 208.55 | 0.000376 | 1.44 | 39.66 | 28.35 | 0.14 |
| 1 | 902 | 50-Yr | 58.80 | 205.00 | 208.59 | | 208.63 | 0.000423 | 1.55 | 41.85 | 32.99 | 0.15 |
| 1 | 902 | 100-Yr | 63.80 | 205.00 | 208.65 | | 208.70 | 0.000463 | 1.64 | 43.93 | 36.55 | 0.16 |
| | | | | | | | | | | | | |
| 1 | 897 | 1-Yr | 14.90 | 207.00 | 207.69 | 207.69 | 207.87 | 0.026170 | 3.38 | 4.41 | 12.74 | 1.01 |
| 1 | 897 | 2-Yr | 22.80 | 207.00 | 207.81 | 207.81 | 208.04 | 0.024675 | 3.81 | 5.99 | 13.95 | 1.02 |
| 1 | 897 | 5-Yr | 35.40 | 207.00 | 207.97 | 207.97 | 208.26 | 0.021301 | 4.35 | 8.28 | 16.18 | 1.00 |
| 1 | 897 | 10-Yr | 44.80 | 207.00 | 208.08 | 208.08 | 208.40 | 0.018959 | 4.60 | 10.18 | 18.20 | 0.97 |
| 1 | 897 | 25-Yr | 53.10 | 207.00 | 208.16 | 208.16 | 208.52 | 0.017881 | 4.82 | 11.81 | 19.76 | 0.96 |
| 1 | 897 | 50-Yr | 58.80 | 207.00 | 208.21 | 208.21 | 208.59 | 0.017749 | 5.00 | 12.80 | 20.65 | 0.96 |
| 1 | 897 | 100-Yr | 63.80 | 207.00 | 208.26 | 208.26 | 208.65 | 0.017066 | 5.10 | 13.86 | 22.57 | 0.95 |
| | | | | | | | | | | | | |
| 1 | 893 | 1-Yr | 14.90 | 204.00 | 206.78 | | 206.78 | 0.000121 | 0.65 | 22.89 | 11.33 | 0.08 |
| 1 | 893 | 2-Yr | 22.80 | 204.00 | 207.01 | | 207.02 | 0.000210 | 0.89 | 25.61 | 12.01 | 0.11 |
| 1 | 893 | 5-Yr | 35.40 | 204.00 | 207.29 | | 207.31 | 0.000354 | 1.22 | 29.01 | 12.30 | 0.14 |
| 1 | 893 | 10-Yr | 44.80 | 204.00 | 207.44 | | 207.47 | 0.000477 | 1.45 | 30.82 | 12.45 | 0.16 |
| 1 | 893 | 25-Yr | 53.10 | 204.00 | 207.54 | | 207.58 | 0.000593 | 1.65 | 32.16 | 12.56 | 0.18 |
| 1 | 893 | 50-Yr | 58.80 | 204.00 | 207.61 | | 207.66 | 0.000677 | 1.78 | 32.98 | 12.62 | 0.19 |
| 1 | 893 | 100-Yr | 63.80 | 204.00 | 207.66 | | 207.72 | 0.000753 | 1.90 | 33.64 | 12.68 | 0.21 |

HEC-RAS Plan: Proposed River: Unnamed_Trib Reach: 1 (Continued)

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|-------|-----------|---------|---------|-----------|-----------|-----------|-----------|------------|----------|-----------|-----------|--------------|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 881 | 1-Yr | 14.90 | 204.00 | 206.78 | | 206.78 | 0.000100 | 0.60 | 24.93 | 13.33 | 0.08 |
| 1 | 881 | 2-Yr | 22.80 | 204.00 | 207.01 | | 207.02 | 0.000169 | 0.81 | 28.12 | 14.02 | 0.10 |
| 1 | 881 | 5-Yr | 35.40 | 204.00 | 207.29 | | 207.31 | 0.000281 | 1.10 | 32.17 | 15.72 | 0.13 |
| 1 | 881 | 10-Yr | 44.80 | 204.00 | 207.43 | | 207.46 | 0.000364 | 1.30 | 34.77 | 20.39 | 0.15 |
| 1 | 881 | 25-Yr | 53.10 | 204.00 | 207.54 | | 207.58 | 0.000438 | 1.47 | 37.17 | 24.26 | 0.17 |
| 1 | 881 | 50-Yr | 58.80 | 204.00 | 207.61 | | 207.65 | 0.000489 | 1.59 | 38.84 | 26.71 | 0.18 |
| 1 | 881 | 100-Yr | 63.80 | 204.00 | 207.66 | | 207.70 | 0.000535 | 1.68 | 40.29 | 28.51 | 0.19 |
| 1 | 873 | 1-Yr | 14.90 | 205.80 | 206.50 | 206.50 | 206.75 | 0.023844 | 4.01 | 3.72 | 7.56 | 1.01 |
| 1 | 873 | 2-Yr | 22.80 | 205.80 | 206.68 | 206.68 | 206.98 | 0.022429 | 4.40 | 5.18 | 8.72 | 1.01 |
| 1 | 873 | 5-Yr | 35.40 | 205.80 | 206.95 | 206.95 | 207.27 | 0.016972 | 4.59 | 8.28 | 19.51 | 0.92 |
| 1 | 873 | 10-Yr | 44.80 | 205.80 | 207.09 | 207.09 | 207.42 | 0.014147 | 4.70 | 11.57 | 25.07 | 0.86 |
| 1 | 873 | 25-Yr | 53.10 | 205.80 | 207.19 | 207.19 | 207.53 | 0.013184 | 4.86 | 14.30 | 28.93 | 0.84 |
| 1 | 873 | 50-Yr | 58.80 | 205.80 | 207.25 | 207.25 | 207.60 | 0.012966 | 5.00 | 16.00 | 30.99 | 0.85 |
| 1 | 873 | 100-Yr | 63.80 | 205.80 | 207.31 | 207.31 | 207.66 | 0.012441 | 5.06 | 17.75 | 33.03 | 0.83 |
| 1 | 842 | 1-Yr | 14.90 | 204.30 | 205.12 | 205.12 | 205.44 | 0.023503 | 4.56 | 3.27 | 4.96 | 0.99 |
| 1 | 842 | 2-Yr | 22.80 | 204.30 | 205.35 | 205.35 | 205.75 | 0.022949 | 5.12 | 4.45 | 5.50 | 1.00 |
| 1 | 842 | 5-Yr | 35.40 | 204.30 | 205.65 | 205.65 | 206.15 | 0.021953 | 5.70 | 6.21 | 12.12 | 1.00 |
| 1 | 842 | 10-Yr | 44.80 | 204.30 | 205.84 | 205.84 | 206.40 | 0.021332 | 6.01 | 7.45 | 28.36 | 1.00 |
| 1 | 842 | 25-Yr | 53.10 | 204.30 | 206.08 | 206.08 | 206.36 | 0.010770 | 4.71 | 18.26 | 34.94 | 0.73 |
| 1 | 842 | 50-Yr | 58.80 | 204.30 | 206.12 | 206.12 | 206.42 | 0.011223 | 4.91 | 19.79 | 37.33 | 0.75 |
| 1 | 842 | 100-Yr | 63.80 | 204.30 | 206.16 | 206.16 | 206.47 | 0.011534 | 5.06 | 21.19 | 39.24 | 0.76 |
| 1 | 821 | 1-Yr | 14.90 | 201.80 | 205.20 | 202.52 | 205.20 | 0.000071 | 0.61 | 24.62 | 9.57 | 0.07 |
| 1 | 821 | 2-Yr | 22.80 | 201.80 | 205.56 | 202.74 | 205.57 | 0.000108 | 0.83 | 28.15 | 25.59 | 0.08 |
| 1 | 821 | 5-Yr | 35.40 | 201.80 | 205.72 | 203.03 | 205.74 | 0.000220 | 1.22 | 29.68 | 34.56 | 0.12 |
| 1 | 821 | 10-Yr | 44.80 | 201.80 | 205.80 | 203.24 | 205.84 | 0.000324 | 1.50 | 30.50 | 39.34 | 0.15 |
| 1 | 821 | 25-Yr | 53.10 | 201.80 | 205.86 | 203.39 | 205.91 | 0.000399 | 1.69 | 40.32 | 41.62 | 0.16 |
| 1 | 821 | 50-Yr | 58.80 | 201.80 | 205.90 | 203.49 | 205.95 | 0.000466 | 1.84 | 41.88 | 42.25 | 0.18 |
| 1 | 821 | 100-Yr | 63.80 | 201.80 | 205.93 | 203.57 | 205.99 | 0.000527 | 1.97 | 43.18 | 42.77 | 0.19 |
| 1 | 799 | 1-Yr | 14.90 | 201.80 | 205.20 | | 205.20 | 0.000050 | 0.53 | 30.18 | 17.33 | 0.06 |
| 1 | 799 | 2-Yr | 22.80 | 201.80 | 205.56 | | 205.57 | 0.000075 | 0.70 | 38.01 | 25.39 | 0.07 |
| 1 | 799 | 5-Yr | 35.40 | 201.80 | 205.72 | | 205.74 | 0.000149 | 1.03 | 42.26 | 28.84 | 0.10 |
| 1 | 799 | 10-Yr | 44.80 | 201.80 | 205.80 | | 205.83 | 0.000216 | 1.26 | 44.73 | 30.66 | 0.12 |
| 1 | 799 | 25-Yr | 53.10 | 201.80 | 205.86 | | 205.89 | 0.000283 | 1.46 | 46.53 | 31.93 | 0.14 |
| 1 | 799 | 50-Yr | 58.80 | 201.80 | 205.90 | | 205.93 | 0.000332 | 1.59 | 47.71 | 32.74 | 0.15 |
| 1 | 799 | 100-Yr | 63.80 | 201.80 | 205.93 | | 205.97 | 0.000377 | 1.70 | 48.71 | 33.40 | 0.16 |
| 1 | 789 | 1-Yr | 14.90 | 203.90 | 204.77 | 204.77 | 205.16 | 0.027578 | 5.03 | 2.96 | 3.82 | 1.01 |
| 1 | 789 | 2-Yr | 22.80 | 203.90 | 205.19 | 205.19 | 205.54 | 0.016879 | 4.76 | 5.68 | 16.20 | 0.80 |
| 1 | 789 | 5-Yr | 35.40 | 203.90 | 205.54 | 205.54 | 205.72 | 0.008535 | 4.03 | 18.60 | 53.03 | 0.59 |
| 1 | 789 | 10-Yr | 44.80 | 203.90 | 205.60 | 205.60 | 205.80 | 0.010113 | 4.50 | 21.77 | 54.74 | 0.65 |
| 1 | 789 | 25-Yr | 53.10 | 203.90 | 205.67 | 205.67 | 205.87 | 0.010072 | 4.63 | 25.70 | 56.85 | 0.65 |
| 1 | 789 | 50-Yr | 58.80 | 203.90 | 205.70 | 205.70 | 205.91 | 0.010514 | 4.80 | 27.67 | 57.81 | 0.67 |

HEC-RAS Plan: Proposed River: Unnamed_Trib Reach: 1 (Continued)

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|-------|-----------|---------|---------|-----------|-----------|-----------|-----------|------------|----------|-----------|-----------|--------------|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 789 | 100-Yr | 63.80 | 203.90 | 205.73 | 205.73 | 205.95 | 0.011013 | 4.96 | 29.15 | 58.49 | 0.68 |
| | | | | | | | | | | | | |
| 1 | 743 | 1-Yr | 14.90 | 201.90 | 202.61 | 202.61 | 202.86 | 0.023240 | 3.98 | 3.74 | 7.52 | 1.00 |
| 1 | 743 | 2-Yr | 22.80 | 201.90 | 202.79 | 202.79 | 203.09 | 0.021967 | 4.38 | 5.20 | 8.67 | 1.00 |
| 1 | 743 | 5-Yr | 35.40 | 201.90 | 203.02 | 203.02 | 203.38 | 0.020481 | 4.83 | 7.33 | 10.55 | 0.99 |
| 1 | 743 | 10-Yr | 44.80 | 201.90 | 203.17 | 203.17 | 203.56 | 0.017590 | 5.06 | 9.23 | 15.13 | 0.95 |
| 1 | 743 | 25-Yr | 53.10 | 201.90 | 203.29 | 203.29 | 203.70 | 0.015635 | 5.20 | 11.30 | 18.90 | 0.92 |
| 1 | 743 | 50-Yr | 58.80 | 201.90 | 203.37 | 203.37 | 203.78 | 0.014463 | 5.26 | 12.91 | 25.48 | 0.89 |
| 1 | 743 | 100-Yr | 63.80 | 201.90 | 203.43 | 203.43 | 203.85 | 0.013990 | 5.36 | 14.20 | 29.11 | 0.88 |
| | | | | | | | | | | | | |
| 1 | 727 | 1-Yr | 14.90 | 201.50 | 202.64 | | 202.68 | 0.002024 | 1.62 | 9.18 | 11.36 | 0.32 |
| 1 | 727 | 2-Yr | 22.80 | 201.50 | 202.80 | | 202.86 | 0.002757 | 2.06 | 11.09 | 12.09 | 0.38 |
| 1 | 727 | 5-Yr | 35.40 | 201.50 | 203.02 | | 203.12 | 0.003496 | 2.55 | 13.87 | 13.56 | 0.44 |
| 1 | 727 | 10-Yr | 44.80 | 201.50 | 203.16 | | 203.29 | 0.003647 | 2.84 | 16.15 | 17.91 | 0.45 |
| 1 | 727 | 25-Yr | 53.10 | 201.50 | 203.28 | | 203.42 | 0.003718 | 3.05 | 18.46 | 21.43 | 0.47 |
| 1 | 727 | 50-Yr | 58.80 | 201.50 | 203.36 | | 203.51 | 0.003732 | 3.17 | 20.20 | 23.74 | 0.47 |
| 1 | 727 | 100-Yr | 63.80 | 201.50 | 203.42 | | 203.59 | 0.003734 | 3.27 | 21.80 | 25.68 | 0.47 |
| | | | | | | | | | | | | |
| 1 | 718 | 1-Yr | 14.90 | 199.30 | 202.66 | | 202.66 | 0.000054 | 0.49 | 30.52 | 13.17 | 0.06 |
| 1 | 718 | 2-Yr | 22.80 | 199.30 | 202.84 | | 202.84 | 0.000103 | 0.69 | 32.88 | 13.60 | 0.08 |
| 1 | 718 | 5-Yr | 35.40 | 199.30 | 203.07 | | 203.09 | 0.000189 | 0.98 | 36.27 | 16.30 | 0.11 |
| 1 | 718 | 10-Yr | 44.80 | 199.30 | 203.23 | | 203.25 | 0.000248 | 1.17 | 39.20 | 21.14 | 0.12 |
| 1 | 718 | 25-Yr | 53.10 | 199.30 | 203.36 | | 203.38 | 0.000298 | 1.32 | 42.09 | 25.03 | 0.14 |
| 1 | 718 | 50-Yr | 58.80 | 199.30 | 203.44 | | 203.47 | 0.000331 | 1.41 | 44.23 | 27.55 | 0.15 |
| 1 | 718 | 100-Yr | 63.80 | 199.30 | 203.50 | | 203.54 | 0.000359 | 1.50 | 46.16 | 29.65 | 0.15 |
| | | | | | | | | | | | | |
| 1 | 704 | 1-Yr | 14.90 | 199.30 | 202.66 | | 202.66 | 0.000054 | 0.49 | 30.51 | 13.17 | 0.06 |
| 1 | 704 | 2-Yr | 22.80 | 199.30 | 202.83 | | 202.84 | 0.000103 | 0.69 | 32.86 | 13.60 | 0.08 |
| 1 | 704 | 5-Yr | 35.40 | 199.30 | 203.07 | | 203.09 | 0.000189 | 0.98 | 36.24 | 16.50 | 0.11 |
| 1 | 704 | 10-Yr | 44.80 | 199.30 | 203.23 | | 203.25 | 0.000249 | 1.17 | 39.22 | 21.94 | 0.12 |
| 1 | 704 | 25-Yr | 53.10 | 199.30 | 203.35 | | 203.38 | 0.000299 | 1.32 | 42.23 | 26.30 | 0.14 |
| 1 | 704 | 50-Yr | 58.80 | 199.30 | 203.43 | | 203.46 | 0.000332 | 1.42 | 44.47 | 29.13 | 0.15 |
| 1 | 704 | 100-Yr | 63.80 | 199.30 | 203.50 | | 203.53 | 0.000360 | 1.50 | 46.51 | 31.49 | 0.15 |
| | | | | | | | | | | | | |
| 1 | 693 | 1-Yr | 14.90 | 201.80 | 202.57 | 202.40 | 202.65 | 0.007145 | 2.26 | 6.60 | 12.89 | 0.56 |
| 1 | 693 | 2-Yr | 22.80 | 201.80 | 202.71 | 202.52 | 202.83 | 0.007713 | 2.71 | 8.41 | 13.09 | 0.60 |
| 1 | 693 | 5-Yr | 35.40 | 201.80 | 202.90 | 202.68 | 203.06 | 0.008195 | 3.25 | 10.90 | 13.36 | 0.63 |
| 1 | 693 | 10-Yr | 44.80 | 201.80 | 203.02 | 202.78 | 203.22 | 0.008388 | 3.57 | 12.57 | 15.02 | 0.65 |
| 1 | 693 | 25-Yr | 53.10 | 201.80 | 203.12 | 202.87 | 203.35 | 0.008324 | 3.81 | 14.39 | 21.43 | 0.66 |
| 1 | 693 | 50-Yr | 58.80 | 201.80 | 203.20 | 202.92 | 203.43 | 0.008073 | 3.92 | 16.08 | 25.97 | 0.66 |
| 1 | 693 | 100-Yr | 63.80 | 201.80 | 203.26 | 202.97 | 203.50 | 0.007746 | 3.99 | 17.86 | 30.04 | 0.65 |
| | | | | | | | | | | | | |
| 1 | 688 | 1-Yr | 14.90 | 201.80 | 202.40 | 202.40 | 202.58 | 0.026657 | 3.40 | 4.39 | 12.64 | 1.02 |
| 1 | 688 | 2-Yr | 22.80 | 201.80 | 202.52 | 202.52 | 202.75 | 0.024411 | 3.89 | 5.87 | 12.81 | 1.01 |
| 1 | 688 | 5-Yr | 35.40 | 201.80 | 202.68 | 202.68 | 202.99 | 0.022353 | 4.46 | 7.93 | 13.04 | 1.01 |
| 1 | 688 | 10-Yr | 44.80 | 201.80 | 202.78 | 202.78 | 203.14 | 0.021580 | 4.81 | 9.31 | 13.19 | 1.01 |

HEC-RAS Plan: Proposed River: Unnamed_Trib Reach: 1 (Continued)

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|-------|-----------|---------|---------|-----------|-----------|-----------|-----------|------------|----------|-----------|-----------|--------------|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 688 | 25-Yr | 53.10 | 201.80 | 202.87 | 202.87 | 203.27 | 0.020726 | 5.06 | 10.50 | 13.32 | 1.00 |
| 1 | 688 | 50-Yr | 58.80 | 201.80 | 202.92 | 202.92 | 203.35 | 0.020685 | 5.25 | 11.21 | 13.39 | 1.01 |
| 1 | 688 | 100-Yr | 63.80 | 201.80 | 202.97 | 202.97 | 203.42 | 0.020599 | 5.40 | 11.82 | 13.46 | 1.01 |
| 1 | 682 | 1-Yr | 14.90 | 198.40 | 201.59 | | 201.60 | 0.000064 | 0.52 | 28.72 | 12.99 | 0.06 |
| 1 | 682 | 2-Yr | 22.80 | 198.40 | 201.77 | | 201.78 | 0.000122 | 0.74 | 31.01 | 13.42 | 0.09 |
| 1 | 682 | 5-Yr | 35.40 | 198.40 | 202.00 | | 202.02 | 0.000225 | 1.03 | 34.27 | 30.03 | 0.12 |
| 1 | 682 | 10-Yr | 44.80 | 198.40 | 202.16 | | 202.18 | 0.000289 | 1.22 | 39.08 | 32.12 | 0.13 |
| 1 | 682 | 25-Yr | 53.10 | 198.40 | 202.34 | | 202.37 | 0.000314 | 1.33 | 45.23 | 34.61 | 0.14 |
| 1 | 682 | 50-Yr | 58.80 | 198.40 | 202.50 | | 202.53 | 0.000309 | 1.37 | 50.97 | 36.78 | 0.14 |
| 1 | 682 | 100-Yr | 63.80 | 198.40 | 202.65 | | 202.68 | 0.000296 | 1.39 | 56.72 | 38.83 | 0.14 |
| 1 | 674 | 1-Yr | 14.90 | 198.40 | 201.59 | | 201.60 | 0.000057 | 0.51 | 30.38 | 17.24 | 0.06 |
| 1 | 674 | 2-Yr | 22.80 | 198.40 | 201.77 | | 201.78 | 0.000107 | 0.72 | 33.51 | 18.85 | 0.08 |
| 1 | 674 | 5-Yr | 35.40 | 198.40 | 202.00 | | 202.02 | 0.000192 | 1.01 | 38.21 | 40.02 | 0.11 |
| 1 | 674 | 10-Yr | 44.80 | 198.40 | 202.16 | | 202.18 | 0.000247 | 1.19 | 44.54 | 41.87 | 0.13 |
| 1 | 674 | 25-Yr | 53.10 | 198.40 | 202.34 | | 202.37 | 0.000266 | 1.29 | 52.48 | 44.09 | 0.13 |
| 1 | 674 | 50-Yr | 58.80 | 198.40 | 202.50 | | 202.53 | 0.000259 | 1.32 | 59.75 | 46.03 | 0.13 |
| 1 | 674 | 100-Yr | 63.80 | 198.40 | 202.65 | | 202.68 | 0.000247 | 1.33 | 66.91 | 47.86 | 0.13 |
| 1 | 671 | 1-Yr | 14.90 | 200.80 | 201.40 | 201.40 | 201.58 | 0.026683 | 3.40 | 4.39 | 12.64 | 1.02 |
| 1 | 671 | 2-Yr | 22.80 | 200.80 | 201.52 | 201.52 | 201.75 | 0.024466 | 3.89 | 5.86 | 12.81 | 1.01 |
| 1 | 671 | 5-Yr | 35.40 | 200.80 | 201.68 | 201.68 | 201.99 | 0.022426 | 4.47 | 7.93 | 13.04 | 1.01 |
| 1 | 671 | 10-Yr | 44.80 | 200.80 | 201.78 | 201.78 | 202.14 | 0.021606 | 4.82 | 9.30 | 13.19 | 1.01 |
| 1 | 671 | 25-Yr | 53.10 | 200.80 | 202.11 | | 202.34 | 0.008654 | 3.85 | 14.20 | 21.71 | 0.67 |
| 1 | 671 | 50-Yr | 58.80 | 200.80 | 202.34 | | 202.51 | 0.005061 | 3.37 | 21.04 | 38.33 | 0.53 |
| 1 | 671 | 100-Yr | 63.80 | 200.80 | 202.55 | | 202.67 | 0.003156 | 2.95 | 30.38 | 50.63 | 0.43 |
| 1 | 668 | 1-Yr | 14.90 | 197.50 | 201.02 | | 201.02 | 0.000032 | 0.39 | 38.46 | 17.00 | 0.04 |
| 1 | 668 | 2-Yr | 23.20 | 197.50 | 201.19 | | 201.19 | 0.000061 | 0.56 | 41.64 | 21.25 | 0.06 |
| 1 | 668 | 5-Yr | 43.20 | 197.50 | 201.49 | | 201.51 | 0.000141 | 0.93 | 49.39 | 29.10 | 0.10 |
| 1 | 668 | 10-Yr | 85.30 | 197.50 | 201.91 | | 201.94 | 0.000332 | 1.56 | 63.53 | 39.60 | 0.15 |
| 1 | 668 | 25-Yr | 135.80 | 197.50 | 202.22 | | 202.29 | 0.000582 | 2.20 | 76.99 | 45.09 | 0.21 |
| 1 | 668 | 50-Yr | 169.90 | 197.50 | 202.39 | | 202.48 | 0.000755 | 2.58 | 84.70 | 47.43 | 0.24 |
| 1 | 668 | 100-Yr | 205.20 | 197.50 | 202.54 | | 202.66 | 0.000931 | 2.95 | 92.13 | 49.57 | 0.26 |
| 1 | 658 | 1-Yr | 14.90 | 197.50 | 201.02 | | 201.02 | 0.000047 | 0.46 | 32.25 | 14.22 | 0.05 |
| 1 | 658 | 2-Yr | 23.20 | 197.50 | 201.18 | | 201.19 | 0.000090 | 0.67 | 35.14 | 20.74 | 0.07 |
| 1 | 658 | 5-Yr | 43.20 | 197.50 | 201.49 | | 201.51 | 0.000210 | 1.10 | 43.23 | 32.71 | 0.12 |
| 1 | 658 | 10-Yr | 85.30 | 197.50 | 201.89 | | 201.94 | 0.000486 | 1.84 | 59.54 | 48.56 | 0.18 |
| 1 | 658 | 25-Yr | 135.80 | 197.50 | 202.19 | | 202.28 | 0.000825 | 2.54 | 75.68 | 55.17 | 0.24 |
| 1 | 658 | 50-Yr | 169.90 | 197.50 | 202.35 | | 202.47 | 0.001047 | 2.94 | 84.76 | 56.99 | 0.27 |
| 1 | 658 | 100-Yr | 205.20 | 197.50 | 202.50 | | 202.65 | 0.001265 | 3.32 | 93.43 | 58.68 | 0.30 |
| 1 | 654 | 1-Yr | 14.90 | 200.50 | 200.84 | 200.84 | 201.01 | 0.026401 | 3.22 | 4.63 | 14.39 | 1.00 |
| 1 | 654 | 2-Yr | 23.20 | 200.50 | 200.96 | 200.96 | 201.17 | 0.024537 | 3.70 | 6.28 | 15.18 | 1.01 |

HEC-RAS Plan: Proposed River: Unnamed_Trib Reach: 1 (Continued)

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|-------|-----------|---------|---------|-----------|-----------|-----------|-----------|------------|----------|-----------|-----------|--------------|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 654 | 5-Yr | 43.20 | 200.50 | 201.19 | 201.19 | 201.48 | 0.019117 | 4.31 | 10.77 | 22.89 | 0.95 |
| 1 | 654 | 10-Yr | 85.30 | 200.50 | 201.55 | 201.55 | 201.90 | 0.014147 | 4.99 | 22.49 | 40.35 | 0.88 |
| 1 | 654 | 25-Yr | 135.80 | 200.50 | 201.84 | 201.84 | 202.24 | 0.012619 | 5.58 | 35.66 | 48.82 | 0.87 |
| 1 | 654 | 50-Yr | 169.90 | 200.50 | 201.99 | 201.99 | 202.43 | 0.012554 | 5.98 | 42.90 | 50.94 | 0.88 |
| 1 | 654 | 100-Yr | 205.20 | 200.50 | 202.11 | 202.11 | 202.60 | 0.012813 | 6.39 | 49.43 | 52.62 | 0.90 |
| | | | | | | | | | | | | |
| 1 | 651 | 1-Yr | 14.90 | 196.50 | 199.79 | | 199.80 | 0.000058 | 0.50 | 29.65 | 13.00 | 0.06 |
| 1 | 651 | 2-Yr | 23.20 | 196.50 | 199.98 | | 199.98 | 0.000114 | 0.72 | 32.06 | 13.44 | 0.08 |
| 1 | 651 | 5-Yr | 43.20 | 196.50 | 200.33 | | 200.35 | 0.000250 | 1.17 | 37.34 | 16.33 | 0.12 |
| 1 | 651 | 10-Yr | 85.30 | 196.50 | 200.89 | | 200.94 | 0.000515 | 1.90 | 47.73 | 21.05 | 0.18 |
| 1 | 651 | 25-Yr | 135.80 | 196.50 | 201.31 | | 201.41 | 0.000851 | 2.65 | 58.10 | 29.98 | 0.24 |
| 1 | 651 | 50-Yr | 169.90 | 196.50 | 201.52 | | 201.67 | 0.001073 | 3.09 | 65.25 | 35.64 | 0.27 |
| 1 | 651 | 100-Yr | 205.20 | 196.50 | 201.72 | | 201.90 | 0.001293 | 3.50 | 72.71 | 40.72 | 0.30 |
| | | | | | | | | | | | | |
| 1 | 640 | 1-Yr | 14.90 | 196.50 | 199.79 | | 199.80 | 0.000059 | 0.50 | 29.52 | 13.02 | 0.06 |
| 1 | 640 | 2-Yr | 23.20 | 196.50 | 199.98 | | 199.98 | 0.000116 | 0.73 | 31.92 | 13.44 | 0.08 |
| 1 | 640 | 5-Yr | 43.20 | 196.50 | 200.33 | | 200.35 | 0.000250 | 1.17 | 39.37 | 24.12 | 0.12 |
| 1 | 640 | 10-Yr | 85.30 | 196.50 | 200.89 | | 200.94 | 0.000487 | 1.84 | 55.19 | 32.75 | 0.18 |
| 1 | 640 | 25-Yr | 135.80 | 196.50 | 201.31 | | 201.40 | 0.000763 | 2.50 | 70.60 | 40.53 | 0.23 |
| 1 | 640 | 50-Yr | 169.90 | 196.50 | 201.53 | | 201.65 | 0.000938 | 2.88 | 80.12 | 44.88 | 0.26 |
| 1 | 640 | 100-Yr | 205.20 | 196.50 | 201.73 | | 201.88 | 0.001106 | 3.24 | 89.52 | 48.79 | 0.28 |
| | | | | | | | | | | | | |
| 1 | 637 | 1-Yr | 14.90 | 199.00 | 199.60 | 199.60 | 199.78 | 0.026672 | 3.40 | 4.39 | 12.64 | 1.02 |
| 1 | 637 | 2-Yr | 23.20 | 199.00 | 199.72 | 199.72 | 199.96 | 0.024385 | 3.91 | 5.93 | 12.82 | 1.01 |
| 1 | 637 | 5-Yr | 43.20 | 199.00 | 199.96 | 199.96 | 200.32 | 0.021663 | 4.76 | 9.08 | 13.16 | 1.01 |
| 1 | 637 | 10-Yr | 85.30 | 199.00 | 200.43 | 200.43 | 200.89 | 0.014975 | 5.47 | 17.04 | 26.19 | 0.90 |
| 1 | 637 | 25-Yr | 135.80 | 199.00 | 200.81 | 200.81 | 201.35 | 0.012843 | 6.12 | 27.97 | 32.77 | 0.88 |
| 1 | 637 | 50-Yr | 169.90 | 199.00 | 201.01 | 201.01 | 201.59 | 0.012111 | 6.47 | 35.14 | 36.96 | 0.87 |
| 1 | 637 | 100-Yr | 205.20 | 199.00 | 201.19 | 201.19 | 201.82 | 0.011863 | 6.83 | 42.02 | 40.57 | 0.87 |
| | | | | | | | | | | | | |
| 1 | 634 | 1-Yr | 14.90 | 195.50 | 198.79 | | 198.80 | 0.000057 | 0.50 | 30.08 | 13.26 | 0.06 |
| 1 | 634 | 2-Yr | 23.20 | 195.50 | 198.98 | | 198.98 | 0.000111 | 0.71 | 32.54 | 13.72 | 0.08 |
| 1 | 634 | 5-Yr | 43.20 | 195.50 | 199.33 | | 199.35 | 0.000250 | 1.15 | 37.92 | 16.52 | 0.12 |
| 1 | 634 | 10-Yr | 85.30 | 195.50 | 199.91 | | 199.96 | 0.000527 | 1.84 | 48.73 | 21.23 | 0.18 |
| 1 | 634 | 25-Yr | 135.80 | 195.50 | 200.36 | | 200.46 | 0.000854 | 2.52 | 59.33 | 25.69 | 0.24 |
| 1 | 634 | 50-Yr | 169.90 | 195.50 | 200.60 | | 200.73 | 0.001068 | 2.91 | 65.85 | 29.48 | 0.27 |
| 1 | 634 | 100-Yr | 205.20 | 195.50 | 200.82 | | 200.98 | 0.001255 | 3.28 | 72.72 | 33.16 | 0.29 |
| | | | | | | | | | | | | |
| 1 | 623 | 1-Yr | 14.90 | 195.50 | 198.79 | | 198.80 | 0.000051 | 0.47 | 31.56 | 14.05 | 0.06 |
| 1 | 623 | 2-Yr | 23.20 | 195.50 | 198.98 | | 198.98 | 0.000100 | 0.68 | 34.16 | 14.45 | 0.08 |
| 1 | 623 | 5-Yr | 43.20 | 195.50 | 199.33 | | 199.35 | 0.000242 | 1.09 | 39.57 | 16.00 | 0.12 |
| 1 | 623 | 10-Yr | 85.30 | 195.50 | 199.90 | | 199.95 | 0.000543 | 1.72 | 49.46 | 18.57 | 0.19 |
| 1 | 623 | 25-Yr | 135.80 | 195.50 | 200.36 | | 200.44 | 0.000818 | 2.32 | 62.06 | 37.27 | 0.23 |
| 1 | 623 | 50-Yr | 169.90 | 195.50 | 200.60 | | 200.71 | 0.000964 | 2.65 | 71.71 | 41.61 | 0.26 |
| 1 | 623 | 100-Yr | 205.20 | 195.50 | 200.83 | | 200.96 | 0.001093 | 2.95 | 81.45 | 45.13 | 0.28 |

HEC-RAS Plan: Proposed River: Unnamed_Trib Reach: 1 (Continued)

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|-------|-----------|---------|---------|-----------|-----------|-----------|-----------|------------|----------|-----------|-----------|--------------|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 620 | 1-Yr | 14.90 | 198.00 | 198.60 | 198.60 | 198.78 | 0.026699 | 3.40 | 4.38 | 12.64 | 1.02 |
| 1 | 620 | 2-Yr | 23.20 | 198.00 | 198.72 | 198.72 | 198.96 | 0.024369 | 3.91 | 5.93 | 12.82 | 1.01 |
| 1 | 620 | 5-Yr | 43.20 | 198.00 | 198.97 | 198.97 | 199.32 | 0.021300 | 4.73 | 9.13 | 13.17 | 1.00 |
| 1 | 620 | 10-Yr | 85.30 | 198.00 | 199.39 | 199.39 | 199.90 | 0.017325 | 5.73 | 15.43 | 19.92 | 0.96 |
| 1 | 620 | 25-Yr | 135.80 | 198.00 | 199.82 | 199.82 | 200.39 | 0.013263 | 6.24 | 26.12 | 28.11 | 0.89 |
| 1 | 620 | 50-Yr | 169.90 | 198.00 | 200.03 | 200.03 | 200.65 | 0.012460 | 6.60 | 32.40 | 30.14 | 0.88 |
| 1 | 620 | 100-Yr | 205.20 | 198.00 | 200.21 | 200.21 | 200.89 | 0.012477 | 7.04 | 37.74 | 31.12 | 0.90 |
| 1 | 616 | 1-Yr | 14.90 | 194.50 | 197.81 | | 197.81 | 0.000053 | 0.47 | 31.44 | 14.43 | 0.06 |
| 1 | 616 | 2-Yr | 23.20 | 194.50 | 198.00 | | 198.00 | 0.000103 | 0.68 | 34.18 | 14.99 | 0.08 |
| 1 | 616 | 5-Yr | 43.20 | 194.50 | 198.36 | | 198.38 | 0.000214 | 1.08 | 41.89 | 22.72 | 0.12 |
| 1 | 616 | 10-Yr | 85.30 | 194.50 | 198.93 | | 198.97 | 0.000413 | 1.71 | 56.12 | 27.08 | 0.17 |
| 1 | 616 | 25-Yr | 135.80 | 194.50 | 199.36 | | 199.44 | 0.000656 | 2.35 | 68.52 | 30.36 | 0.22 |
| 1 | 616 | 50-Yr | 169.90 | 194.50 | 199.58 | | 199.69 | 0.000823 | 2.73 | 75.40 | 32.04 | 0.24 |
| 1 | 616 | 100-Yr | 205.20 | 194.50 | 199.78 | | 199.92 | 0.000993 | 3.10 | 81.85 | 33.54 | 0.27 |
| 1 | 605 | 1-Yr | 14.90 | 194.50 | 197.81 | | 197.81 | 0.000053 | 0.47 | 31.43 | 14.43 | 0.06 |
| 1 | 605 | 2-Yr | 23.20 | 194.50 | 197.99 | | 198.00 | 0.000103 | 0.68 | 34.16 | 14.98 | 0.08 |
| 1 | 605 | 5-Yr | 43.20 | 194.50 | 198.36 | | 198.37 | 0.000208 | 1.07 | 46.00 | 35.09 | 0.12 |
| 1 | 605 | 10-Yr | 85.30 | 194.50 | 198.93 | | 198.97 | 0.000371 | 1.62 | 68.02 | 41.69 | 0.16 |
| 1 | 605 | 25-Yr | 135.80 | 194.50 | 199.37 | | 199.43 | 0.000553 | 2.16 | 87.35 | 46.71 | 0.20 |
| 1 | 605 | 50-Yr | 169.90 | 194.50 | 199.59 | | 199.67 | 0.000671 | 2.47 | 98.16 | 49.30 | 0.22 |
| 1 | 605 | 100-Yr | 205.20 | 194.50 | 199.80 | | 199.90 | 0.000786 | 2.77 | 108.45 | 51.65 | 0.24 |
| 1 | 602 | 1-Yr | 14.90 | 197.00 | 197.61 | 197.61 | 197.79 | 0.026176 | 3.42 | 4.35 | 12.24 | 1.01 |
| 1 | 602 | 2-Yr | 23.20 | 197.00 | 197.74 | 197.74 | 197.98 | 0.023845 | 3.93 | 5.91 | 12.51 | 1.01 |
| 1 | 602 | 5-Yr | 43.20 | 197.00 | 197.98 | 197.98 | 198.34 | 0.021539 | 4.78 | 9.04 | 13.03 | 1.01 |
| 1 | 602 | 10-Yr | 85.30 | 197.00 | 198.43 | 198.43 | 198.92 | 0.016411 | 5.65 | 15.96 | 22.29 | 0.95 |
| 1 | 602 | 25-Yr | 135.80 | 197.00 | 198.86 | 198.86 | 199.38 | 0.011914 | 6.01 | 29.07 | 35.68 | 0.85 |
| 1 | 602 | 50-Yr | 169.90 | 197.00 | 199.05 | 199.05 | 199.62 | 0.011600 | 6.41 | 36.18 | 38.87 | 0.86 |
| 1 | 602 | 100-Yr | 205.20 | 197.00 | 199.22 | 199.22 | 199.84 | 0.011445 | 6.78 | 43.12 | 41.74 | 0.86 |
| 1 | 599 | 1-Yr | 14.90 | 193.50 | 196.86 | | 196.86 | 0.000044 | 0.45 | 32.76 | 13.67 | 0.05 |
| 1 | 599 | 2-Yr | 23.20 | 193.50 | 197.06 | | 197.07 | 0.000085 | 0.65 | 35.58 | 14.41 | 0.07 |
| 1 | 599 | 5-Yr | 43.20 | 193.50 | 197.41 | | 197.43 | 0.000190 | 1.06 | 41.11 | 16.88 | 0.11 |
| 1 | 599 | 10-Yr | 85.30 | 193.50 | 197.94 | | 197.99 | 0.000417 | 1.76 | 50.98 | 20.57 | 0.17 |
| 1 | 599 | 25-Yr | 135.80 | 193.50 | 198.39 | | 198.48 | 0.000679 | 2.44 | 63.25 | 30.84 | 0.22 |
| 1 | 599 | 50-Yr | 169.90 | 193.50 | 198.63 | | 198.75 | 0.000844 | 2.83 | 71.05 | 33.85 | 0.25 |
| 1 | 599 | 100-Yr | 205.20 | 193.50 | 198.84 | | 198.99 | 0.001011 | 3.21 | 78.49 | 36.50 | 0.27 |
| 1 | 589 | 1-Yr | 14.90 | 193.50 | 196.86 | | 196.86 | 0.000025 | 0.35 | 42.54 | 18.18 | 0.04 |
| 1 | 589 | 2-Yr | 23.20 | 193.50 | 197.06 | | 197.06 | 0.000047 | 0.50 | 46.31 | 19.49 | 0.06 |
| 1 | 589 | 5-Yr | 43.20 | 193.50 | 197.42 | | 197.43 | 0.000104 | 0.81 | 54.19 | 24.79 | 0.09 |
| 1 | 589 | 10-Yr | 85.30 | 193.50 | 197.95 | | 197.98 | 0.000222 | 1.34 | 69.57 | 32.75 | 0.13 |
| 1 | 589 | 25-Yr | 135.80 | 193.50 | 198.41 | | 198.46 | 0.000352 | 1.83 | 86.20 | 39.55 | 0.16 |
| 1 | 589 | 50-Yr | 169.90 | 193.50 | 198.66 | | 198.73 | 0.000434 | 2.12 | 96.51 | 43.22 | 0.18 |

HEC-RAS Plan: Proposed River: Unnamed_Trib Reach: 1 (Continued)

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|-------|-----------|---------|---------|-----------|-----------|-----------|-----------|------------|----------|-----------|-----------|--------------|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 589 | 100-Yr | 205.20 | 193.50 | 198.88 | | 198.96 | 0.000517 | 2.39 | 106.40 | 46.47 | 0.20 |
| | | | | | | | | | | | | |
| 1 | 585 | 1-Yr | 14.90 | 196.00 | 196.63 | 196.63 | 196.84 | 0.024376 | 3.64 | 4.09 | 9.95 | 1.00 |
| 1 | 585 | 2-Yr | 23.20 | 196.00 | 196.79 | 196.79 | 197.04 | 0.023386 | 4.03 | 5.76 | 11.65 | 1.01 |
| 1 | 585 | 5-Yr | 43.20 | 196.00 | 197.05 | 197.05 | 197.39 | 0.021243 | 4.66 | 9.30 | 14.99 | 1.01 |
| 1 | 585 | 10-Yr | 85.30 | 196.00 | 197.46 | 197.46 | 197.93 | 0.015970 | 5.56 | 16.88 | 22.31 | 0.95 |
| 1 | 585 | 25-Yr | 135.80 | 196.00 | 197.84 | 197.84 | 198.41 | 0.013420 | 6.24 | 26.62 | 29.12 | 0.91 |
| 1 | 585 | 50-Yr | 169.90 | 196.00 | 198.06 | 198.06 | 198.67 | 0.012374 | 6.58 | 33.36 | 33.06 | 0.90 |
| 1 | 585 | 100-Yr | 205.20 | 196.00 | 198.25 | 198.25 | 198.90 | 0.011742 | 6.89 | 40.09 | 36.63 | 0.89 |
| | | | | | | | | | | | | |
| 1 | 566.5 | 1-Yr | 14.90 | 194.60 | 195.80 | | 195.89 | 0.003016 | 2.47 | 8.25 | 12.15 | 0.41 |
| 1 | 566.5 | 2-Yr | 23.20 | 194.60 | 195.98 | | 196.11 | 0.004174 | 3.19 | 10.49 | 13.78 | 0.49 |
| 1 | 566.5 | 5-Yr | 43.20 | 194.60 | 196.25 | | 196.51 | 0.006695 | 4.59 | 14.64 | 16.50 | 0.64 |
| 1 | 566.5 | 10-Yr | 85.30 | 194.60 | 196.63 | 196.55 | 197.13 | 0.010595 | 6.66 | 21.62 | 20.30 | 0.84 |
| 1 | 566.5 | 25-Yr | 135.80 | 194.60 | 197.03 | 197.03 | 197.71 | 0.011985 | 8.02 | 30.57 | 24.28 | 0.92 |
| 1 | 566.5 | 50-Yr | 169.90 | 194.60 | 197.28 | 197.28 | 198.02 | 0.011905 | 8.56 | 37.01 | 26.56 | 0.93 |
| 1 | 566.5 | 100-Yr | 205.20 | 194.60 | 197.56 | 197.51 | 198.30 | 0.011012 | 8.81 | 44.77 | 29.07 | 0.91 |
| | | | | | | | | | | | | |
| 1 | 560 | 1-Yr | 14.90 | 192.50 | 195.86 | | 195.86 | 0.000052 | 0.47 | 31.46 | 14.10 | 0.06 |
| 1 | 560 | 2-Yr | 23.20 | 192.50 | 196.06 | | 196.07 | 0.000097 | 0.67 | 34.65 | 19.15 | 0.08 |
| 1 | 560 | 5-Yr | 43.20 | 192.50 | 196.41 | | 196.43 | 0.000209 | 1.08 | 41.76 | 21.22 | 0.12 |
| 1 | 560 | 10-Yr | 85.30 | 192.50 | 196.94 | | 196.98 | 0.000436 | 1.76 | 53.67 | 24.28 | 0.17 |
| 1 | 560 | 25-Yr | 135.80 | 192.50 | 197.42 | | 197.51 | 0.000662 | 2.38 | 66.20 | 27.13 | 0.22 |
| 1 | 560 | 50-Yr | 169.90 | 192.50 | 197.71 | | 197.82 | 0.000790 | 2.73 | 74.11 | 28.79 | 0.24 |
| 1 | 560 | 100-Yr | 205.20 | 192.50 | 197.97 | | 198.11 | 0.000905 | 3.05 | 81.97 | 30.34 | 0.26 |
| | | | | | | | | | | | | |
| 1 | 536 | 1-Yr | 14.90 | 192.50 | 195.86 | | 195.86 | 0.000050 | 0.46 | 32.13 | 14.57 | 0.06 |
| 1 | 536 | 2-Yr | 23.20 | 192.50 | 196.06 | | 196.07 | 0.000094 | 0.66 | 35.22 | 16.75 | 0.08 |
| 1 | 536 | 5-Yr | 43.20 | 192.50 | 196.41 | | 196.43 | 0.000203 | 1.07 | 41.34 | 18.24 | 0.11 |
| 1 | 536 | 10-Yr | 85.30 | 192.50 | 196.93 | | 196.97 | 0.000432 | 1.75 | 51.34 | 20.43 | 0.17 |
| 1 | 536 | 25-Yr | 135.80 | 192.50 | 197.40 | | 197.49 | 0.000674 | 2.40 | 61.60 | 22.47 | 0.22 |
| 1 | 536 | 50-Yr | 169.90 | 192.50 | 197.68 | | 197.80 | 0.000816 | 2.77 | 67.96 | 23.64 | 0.25 |
| 1 | 536 | 100-Yr | 205.20 | 192.50 | 197.94 | | 198.08 | 0.000951 | 3.12 | 74.20 | 24.73 | 0.27 |
| | | | | | | | | | | | | |
| 1 | 528 | 1-Yr | 14.90 | 195.00 | 195.63 | 195.63 | 195.84 | 0.024847 | 3.66 | 4.07 | 9.92 | 1.01 |
| 1 | 528 | 2-Yr | 23.20 | 195.00 | 195.79 | 195.79 | 196.04 | 0.023000 | 4.00 | 5.80 | 11.68 | 1.00 |
| 1 | 528 | 5-Yr | 43.20 | 195.00 | 196.07 | 196.07 | 196.39 | 0.020105 | 4.58 | 9.62 | 17.33 | 0.98 |
| 1 | 528 | 10-Yr | 85.30 | 195.00 | 196.44 | 196.44 | 196.92 | 0.016832 | 5.63 | 16.48 | 19.20 | 0.97 |
| 1 | 528 | 25-Yr | 135.80 | 195.00 | 196.80 | 196.80 | 197.42 | 0.015186 | 6.51 | 23.67 | 20.99 | 0.97 |
| 1 | 528 | 50-Yr | 169.90 | 195.00 | 197.01 | 197.01 | 197.72 | 0.014639 | 7.00 | 28.11 | 22.02 | 0.97 |
| 1 | 528 | 100-Yr | 205.20 | 195.00 | 197.21 | 197.21 | 198.00 | 0.014050 | 7.42 | 32.65 | 23.03 | 0.97 |
| | | | | | | | | | | | | |
| 1 | 490 | 1-Yr | 14.90 | 193.60 | 194.27 | 194.27 | 194.50 | 0.024346 | 3.83 | 3.89 | 8.65 | 1.01 |
| 1 | 490 | 2-Yr | 23.20 | 193.60 | 194.44 | 194.44 | 194.72 | 0.022898 | 4.22 | 5.50 | 10.11 | 1.01 |
| 1 | 490 | 5-Yr | 43.20 | 193.60 | 194.75 | 194.75 | 195.10 | 0.020898 | 4.80 | 9.00 | 12.71 | 1.01 |
| 1 | 490 | 10-Yr | 85.30 | 193.60 | 195.19 | 195.19 | 195.66 | 0.019296 | 5.46 | 15.63 | 17.39 | 1.01 |

HEC-RAS Plan: Proposed River: Unnamed_Trib Reach: 1 (Continued)

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|-------|-----------|---------|---------|-----------|-----------|-----------|-----------|------------|----------|-----------|-----------|--------------|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 490 | 25-Yr | 135.80 | 193.60 | 195.56 | 195.56 | 196.12 | 0.017587 | 5.99 | 22.95 | 21.78 | 1.00 |
| 1 | 490 | 50-Yr | 169.90 | 193.60 | 195.74 | 195.74 | 196.38 | 0.016947 | 6.47 | 26.79 | 22.48 | 1.00 |
| 1 | 490 | 100-Yr | 205.20 | 193.60 | 195.92 | 195.92 | 196.64 | 0.015976 | 6.85 | 30.86 | 23.21 | 0.99 |
| 1 | 474 | 1-Yr | 14.90 | 193.20 | 193.99 | | 194.12 | 0.011588 | 2.91 | 5.13 | 9.94 | 0.71 |
| 1 | 474 | 2-Yr | 23.20 | 193.20 | 194.12 | | 194.32 | 0.014651 | 3.57 | 6.49 | 10.99 | 0.82 |
| 1 | 474 | 5-Yr | 43.20 | 193.20 | 194.33 | 194.33 | 194.69 | 0.020996 | 4.82 | 8.96 | 12.66 | 1.01 |
| 1 | 474 | 10-Yr | 85.30 | 193.20 | 194.77 | 194.77 | 195.25 | 0.019152 | 5.58 | 15.30 | 16.17 | 1.01 |
| 1 | 474 | 25-Yr | 135.80 | 193.20 | 195.14 | 195.14 | 195.75 | 0.017619 | 6.27 | 21.74 | 19.49 | 1.01 |
| 1 | 474 | 50-Yr | 169.90 | 193.20 | 195.35 | 195.35 | 196.03 | 0.016027 | 6.66 | 26.08 | 21.80 | 0.99 |
| 1 | 474 | 100-Yr | 205.20 | 193.20 | 195.54 | 195.54 | 196.30 | 0.014929 | 7.02 | 30.61 | 23.98 | 0.97 |
| 1 | 465 | 1-Yr | 14.90 | 191.00 | 194.08 | | 194.08 | 0.000073 | 0.54 | 27.51 | 13.49 | 0.07 |
| 1 | 465 | 2-Yr | 23.20 | 191.00 | 194.25 | | 194.26 | 0.000135 | 0.78 | 29.96 | 14.63 | 0.09 |
| 1 | 465 | 5-Yr | 43.20 | 191.00 | 194.54 | | 194.57 | 0.000313 | 1.28 | 34.50 | 16.52 | 0.14 |
| 1 | 465 | 10-Yr | 85.30 | 191.00 | 194.98 | | 195.05 | 0.000705 | 2.14 | 42.45 | 19.40 | 0.22 |
| 1 | 465 | 25-Yr | 135.80 | 191.00 | 195.39 | | 195.52 | 0.001147 | 2.97 | 51.08 | 23.56 | 0.28 |
| 1 | 465 | 50-Yr | 169.90 | 191.00 | 195.62 | | 195.79 | 0.001418 | 3.44 | 56.74 | 25.96 | 0.32 |
| 1 | 465 | 100-Yr | 205.20 | 191.00 | 195.83 | | 196.05 | 0.001675 | 3.89 | 62.49 | 28.19 | 0.35 |
| 1 | 443 | 1-Yr | 14.90 | 191.00 | 194.08 | | 194.08 | 0.000052 | 0.47 | 31.92 | 18.99 | 0.06 |
| 1 | 443 | 2-Yr | 23.20 | 191.00 | 194.25 | | 194.26 | 0.000097 | 0.67 | 35.33 | 20.12 | 0.08 |
| 1 | 443 | 5-Yr | 43.20 | 191.00 | 194.54 | | 194.56 | 0.000221 | 1.10 | 41.46 | 22.02 | 0.12 |
| 1 | 443 | 10-Yr | 85.30 | 191.00 | 194.99 | | 195.04 | 0.000489 | 1.83 | 51.89 | 24.91 | 0.19 |
| 1 | 443 | 25-Yr | 135.80 | 191.00 | 195.39 | | 195.49 | 0.000781 | 2.51 | 62.72 | 28.15 | 0.24 |
| 1 | 443 | 50-Yr | 169.90 | 191.00 | 195.63 | | 195.75 | 0.000958 | 2.91 | 69.51 | 30.02 | 0.27 |
| 1 | 443 | 100-Yr | 205.20 | 191.00 | 195.85 | | 196.00 | 0.001125 | 3.28 | 76.26 | 31.77 | 0.29 |
| 1 | 435 | 1-Yr | 14.90 | 193.30 | 193.88 | 193.88 | 194.06 | 0.025764 | 3.43 | 4.34 | 12.06 | 1.01 |
| 1 | 435 | 2-Yr | 23.20 | 193.30 | 194.03 | 194.03 | 194.23 | 0.021615 | 3.66 | 6.51 | 21.19 | 0.96 |
| 1 | 435 | 5-Yr | 43.20 | 193.30 | 194.25 | 194.25 | 194.53 | 0.018051 | 4.36 | 11.35 | 22.73 | 0.94 |
| 1 | 435 | 10-Yr | 85.30 | 193.30 | 194.57 | 194.57 | 194.99 | 0.016695 | 5.45 | 19.09 | 25.00 | 0.96 |
| 1 | 435 | 25-Yr | 135.80 | 193.30 | 194.88 | 194.88 | 195.43 | 0.015735 | 6.34 | 27.18 | 27.17 | 0.98 |
| 1 | 435 | 50-Yr | 169.90 | 193.30 | 195.07 | 195.07 | 195.68 | 0.015233 | 6.81 | 32.29 | 28.46 | 0.98 |
| 1 | 435 | 100-Yr | 205.20 | 193.30 | 195.24 | 195.24 | 195.93 | 0.014869 | 7.24 | 37.31 | 29.67 | 0.99 |
| 1 | 395 | 1-Yr | 14.90 | 191.90 | 192.60 | 192.58 | 192.82 | 0.022395 | 3.81 | 3.91 | 8.22 | 0.97 |
| 1 | 395 | 2-Yr | 25.10 | 191.90 | 192.80 | 192.80 | 193.10 | 0.022412 | 4.39 | 5.72 | 9.74 | 1.01 |
| 1 | 395 | 5-Yr | 53.80 | 191.90 | 193.22 | 193.22 | 193.63 | 0.020030 | 5.14 | 10.47 | 12.88 | 1.00 |
| 1 | 395 | 10-Yr | 101.30 | 191.90 | 193.78 | 193.78 | 194.20 | 0.011836 | 5.25 | 23.11 | 41.99 | 0.83 |
| 1 | 395 | 25-Yr | 157.30 | 191.90 | 194.09 | 194.09 | 194.58 | 0.011318 | 5.95 | 36.19 | 42.88 | 0.84 |
| 1 | 395 | 50-Yr | 195.30 | 191.90 | 194.25 | 194.25 | 194.80 | 0.011490 | 6.40 | 43.12 | 43.34 | 0.86 |
| 1 | 395 | 100-Yr | 234.40 | 191.90 | 194.40 | 194.40 | 195.00 | 0.011638 | 6.81 | 49.62 | 43.77 | 0.88 |
| 1 | 370 | 1-Yr | 14.90 | 191.40 | 192.02 | 192.02 | 192.23 | 0.024993 | 3.65 | 4.09 | 10.09 | 1.01 |
| 1 | 370 | 2-Yr | 25.10 | 191.40 | 192.20 | 192.20 | 192.47 | 0.022804 | 4.22 | 5.95 | 10.98 | 1.01 |

HEC-RAS Plan: Proposed River: Unnamed_Trib Reach: 1 (Continued)

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|-------|-----------|---------|---------|-----------|-----------|-----------|-----------|------------|----------|-----------|-----------|--------------|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 370 | 5-Yr | 53.80 | 191.40 | 192.57 | 192.57 | 192.98 | 0.020132 | 5.16 | 10.44 | 12.86 | 1.01 |
| 1 | 370 | 10-Yr | 101.30 | 191.40 | 193.17 | 193.17 | 193.57 | 0.011237 | 5.15 | 24.15 | 46.18 | 0.81 |
| 1 | 370 | 25-Yr | 157.30 | 191.40 | 193.47 | 193.47 | 193.93 | 0.010885 | 5.83 | 38.10 | 47.37 | 0.82 |
| 1 | 370 | 50-Yr | 195.30 | 191.40 | 193.63 | 193.63 | 194.14 | 0.010746 | 6.20 | 46.09 | 48.04 | 0.83 |
| 1 | 370 | 100-Yr | 234.40 | 191.40 | 193.76 | 193.76 | 194.33 | 0.011333 | 6.68 | 52.29 | 48.55 | 0.86 |
| | | | | | | | | | | | | |
| 1 | 358 | 1-Yr | 14.90 | 188.40 | 191.79 | | 191.79 | 0.000048 | 0.47 | 31.80 | 13.54 | 0.05 |
| 1 | 358 | 2-Yr | 25.10 | 188.40 | 191.98 | | 191.99 | 0.000111 | 0.73 | 34.41 | 13.96 | 0.08 |
| 1 | 358 | 5-Yr | 53.80 | 188.40 | 192.44 | | 192.47 | 0.000317 | 1.31 | 41.21 | 15.33 | 0.14 |
| 1 | 358 | 10-Yr | 101.30 | 188.40 | 192.88 | | 192.95 | 0.000750 | 2.11 | 48.12 | 16.63 | 0.22 |
| 1 | 358 | 25-Yr | 157.30 | 188.40 | 193.28 | | 193.40 | 0.001163 | 2.82 | 62.80 | 46.38 | 0.28 |
| 1 | 358 | 50-Yr | 195.30 | 188.40 | 193.54 | | 193.68 | 0.001312 | 3.15 | 75.00 | 47.68 | 0.30 |
| 1 | 358 | 100-Yr | 234.40 | 188.40 | 193.83 | | 194.00 | 0.001339 | 3.36 | 89.45 | 49.17 | 0.30 |
| | | | | | | | | | | | | |
| 1 | 311 | 1-Yr | 14.90 | 188.40 | 191.79 | | 191.79 | 0.000057 | 0.49 | 30.69 | 14.15 | 0.06 |
| 1 | 311 | 2-Yr | 25.10 | 188.40 | 191.97 | | 191.98 | 0.000131 | 0.75 | 33.40 | 14.89 | 0.09 |
| 1 | 311 | 5-Yr | 53.80 | 188.40 | 192.43 | | 192.45 | 0.000387 | 1.32 | 40.84 | 17.99 | 0.15 |
| 1 | 311 | 10-Yr | 101.30 | 188.40 | 192.84 | | 192.91 | 0.000906 | 2.07 | 48.84 | 20.87 | 0.24 |
| 1 | 311 | 25-Yr | 157.30 | 188.40 | 193.22 | | 193.34 | 0.001345 | 2.72 | 63.48 | 50.79 | 0.30 |
| 1 | 311 | 50-Yr | 195.30 | 188.40 | 193.48 | | 193.61 | 0.001439 | 2.99 | 76.72 | 52.04 | 0.31 |
| 1 | 311 | 100-Yr | 234.40 | 188.40 | 193.78 | | 193.93 | 0.001383 | 3.14 | 92.73 | 53.53 | 0.31 |
| | | | | | | | | | | | | |
| 1 | 293 | 1-Yr | 15.80 | 191.00 | 191.61 | 191.60 | 191.77 | 0.025018 | 3.24 | 4.88 | 14.47 | 0.98 |
| 1 | 293 | 2-Yr | 25.50 | 191.00 | 191.76 | 191.73 | 191.96 | 0.020705 | 3.57 | 7.15 | 15.82 | 0.94 |
| 1 | 293 | 5-Yr | 60.40 | 191.00 | 192.22 | 192.14 | 192.42 | 0.009717 | 3.69 | 20.51 | 42.76 | 0.71 |
| 1 | 293 | 10-Yr | 111.50 | 191.00 | 192.67 | | 192.86 | 0.005912 | 3.84 | 40.21 | 44.35 | 0.59 |
| 1 | 293 | 25-Yr | 171.40 | 191.00 | 193.07 | | 193.28 | 0.004837 | 4.16 | 58.42 | 45.94 | 0.56 |
| 1 | 293 | 50-Yr | 212.00 | 191.00 | 193.35 | | 193.57 | 0.004162 | 4.26 | 71.31 | 47.58 | 0.53 |
| 1 | 293 | 100-Yr | 253.80 | 191.00 | 193.68 | | 193.88 | 0.003336 | 4.23 | 87.19 | 49.52 | 0.49 |
| | | | | | | | | | | | | |
| 1 | 275 | 1-Yr | 15.80 | 190.40 | 191.09 | 191.09 | 191.32 | 0.024363 | 3.89 | 4.06 | 8.86 | 1.01 |
| 1 | 275 | 2-Yr | 25.50 | 190.40 | 191.29 | 191.29 | 191.56 | 0.021778 | 4.24 | 6.02 | 10.58 | 0.99 |
| 1 | 275 | 5-Yr | 60.40 | 190.40 | 191.75 | 191.75 | 192.15 | 0.019814 | 5.12 | 11.80 | 14.52 | 1.00 |
| 1 | 275 | 10-Yr | 111.50 | 190.40 | 192.26 | 192.26 | 192.69 | 0.011880 | 5.43 | 25.51 | 46.28 | 0.84 |
| 1 | 275 | 25-Yr | 171.40 | 190.40 | 192.88 | 192.58 | 193.18 | 0.005647 | 4.86 | 51.69 | 74.08 | 0.62 |
| 1 | 275 | 50-Yr | 212.00 | 190.40 | 193.33 | 192.75 | 193.49 | 0.002737 | 3.89 | 100.25 | 83.64 | 0.45 |
| 1 | 275 | 100-Yr | 253.80 | 190.40 | 193.68 | 192.92 | 193.81 | 0.002003 | 3.65 | 130.74 | 88.10 | 0.39 |
| | | | | | | | | | | | | |
| 1 | 264 | 1-Yr | 15.80 | 187.70 | 190.89 | | 190.89 | 0.000068 | 0.50 | 31.56 | 16.54 | 0.06 |
| 1 | 264 | 2-Yr | 25.50 | 187.70 | 191.13 | | 191.14 | 0.000123 | 0.71 | 35.74 | 17.74 | 0.09 |
| 1 | 264 | 5-Yr | 60.40 | 187.70 | 191.77 | | 191.79 | 0.000279 | 1.29 | 48.19 | 21.10 | 0.14 |
| 1 | 264 | 10-Yr | 111.50 | 187.70 | 192.42 | | 192.48 | 0.000451 | 1.89 | 63.13 | 25.01 | 0.18 |
| 1 | 264 | 25-Yr | 171.40 | 187.70 | 193.01 | | 193.10 | 0.000603 | 2.43 | 79.16 | 29.55 | 0.22 |
| 1 | 264 | 50-Yr | 212.00 | 187.70 | 193.35 | | 193.46 | 0.000686 | 2.74 | 89.58 | 32.25 | 0.23 |
| 1 | 264 | 100-Yr | 253.80 | 187.70 | 193.67 | | 193.80 | 0.000755 | 3.02 | 100.24 | 34.65 | 0.25 |

HEC-RAS Plan: Proposed River: Unnamed_Trib Reach: 1 (Continued)

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|-------|-----------|---------|---------|-----------|-----------|-----------|-----------|------------|----------|-----------|-----------|--------------|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 251 | 1-Yr | 15.80 | 187.70 | 190.88 | | 190.89 | 0.000071 | 0.50 | 31.52 | 17.14 | 0.07 |
| 1 | 251 | 2-Yr | 25.50 | 187.70 | 191.13 | | 191.13 | 0.000127 | 0.71 | 35.85 | 18.38 | 0.09 |
| 1 | 251 | 5-Yr | 60.40 | 187.70 | 191.76 | | 191.79 | 0.000281 | 1.27 | 48.34 | 20.80 | 0.14 |
| 1 | 251 | 10-Yr | 111.50 | 187.70 | 192.42 | | 192.47 | 0.000450 | 1.87 | 62.92 | 24.18 | 0.18 |
| 1 | 251 | 25-Yr | 171.40 | 187.70 | 193.01 | | 193.09 | 0.000599 | 2.41 | 78.21 | 27.68 | 0.22 |
| 1 | 251 | 50-Yr | 212.00 | 187.70 | 193.34 | | 193.45 | 0.000681 | 2.71 | 87.78 | 29.24 | 0.23 |
| 1 | 251 | 100-Yr | 253.80 | 187.70 | 193.66 | | 193.79 | 0.000752 | 2.99 | 97.27 | 30.64 | 0.25 |
| 1 | 239 | 1-Yr | 15.80 | 190.00 | 190.65 | 190.65 | 190.86 | 0.024256 | 3.70 | 4.27 | 10.10 | 1.00 |
| 1 | 239 | 2-Yr | 25.50 | 190.00 | 190.81 | 190.81 | 191.10 | 0.021619 | 4.32 | 5.99 | 11.36 | 1.00 |
| 1 | 239 | 5-Yr | 60.40 | 190.00 | 191.27 | 191.27 | 191.73 | 0.016585 | 5.57 | 12.00 | 14.96 | 0.96 |
| 1 | 239 | 10-Yr | 111.50 | 190.00 | 191.76 | 191.76 | 192.40 | 0.014185 | 6.66 | 20.16 | 18.21 | 0.95 |
| 1 | 239 | 25-Yr | 171.40 | 190.00 | 192.22 | 192.22 | 193.00 | 0.012757 | 7.53 | 29.21 | 20.98 | 0.94 |
| 1 | 239 | 50-Yr | 212.00 | 190.00 | 192.47 | 192.47 | 193.35 | 0.012431 | 8.05 | 34.70 | 22.11 | 0.95 |
| 1 | 239 | 100-Yr | 253.80 | 190.00 | 192.70 | 192.70 | 193.68 | 0.012523 | 8.60 | 39.71 | 23.12 | 0.97 |
| 1 | 218 | 1-Yr | 15.80 | 189.50 | 190.30 | | 190.42 | 0.010848 | 2.78 | 5.68 | 11.24 | 0.69 |
| 1 | 218 | 2-Yr | 25.50 | 189.50 | 190.48 | 190.34 | 190.64 | 0.011598 | 3.23 | 7.90 | 13.13 | 0.73 |
| 1 | 218 | 5-Yr | 60.40 | 189.50 | 190.93 | 190.76 | 191.19 | 0.010261 | 4.16 | 15.05 | 19.02 | 0.75 |
| 1 | 218 | 10-Yr | 111.50 | 189.50 | 191.43 | 191.17 | 191.79 | 0.008105 | 4.89 | 25.45 | 22.38 | 0.71 |
| 1 | 218 | 25-Yr | 171.40 | 189.50 | 191.91 | 191.55 | 192.35 | 0.006946 | 5.47 | 37.05 | 25.62 | 0.69 |
| 1 | 218 | 50-Yr | 212.00 | 189.50 | 192.19 | | 192.67 | 0.006591 | 5.82 | 44.35 | 27.42 | 0.69 |
| 1 | 218 | 100-Yr | 253.80 | 189.50 | 192.45 | | 192.98 | 0.006333 | 6.14 | 51.62 | 29.02 | 0.69 |
| 1 | 200 | 1-Yr | 17.60 | 189.20 | 189.89 | 189.89 | 190.12 | 0.023865 | 3.80 | 4.63 | 10.36 | 1.00 |
| 1 | 200 | 2-Yr | 27.60 | 189.20 | 190.06 | 190.06 | 190.34 | 0.022508 | 4.29 | 6.45 | 11.98 | 1.01 |
| 1 | 200 | 5-Yr | 63.00 | 189.20 | 190.48 | 190.48 | 190.94 | 0.017184 | 5.46 | 12.34 | 15.71 | 0.97 |
| 1 | 200 | 10-Yr | 115.10 | 189.20 | 190.95 | 190.95 | 191.57 | 0.014344 | 6.48 | 20.74 | 19.85 | 0.95 |
| 1 | 200 | 25-Yr | 176.60 | 189.20 | 191.40 | 191.40 | 192.15 | 0.012719 | 7.29 | 30.45 | 23.75 | 0.93 |
| 1 | 200 | 50-Yr | 218.30 | 189.20 | 191.66 | 191.66 | 192.48 | 0.012076 | 7.73 | 36.81 | 25.68 | 0.93 |
| 1 | 200 | 100-Yr | 261.10 | 189.20 | 191.89 | 191.89 | 192.79 | 0.011701 | 8.15 | 43.01 | 27.37 | 0.93 |
| 1 | 182 | 1-Yr | 17.60 | 185.00 | 188.89 | | 188.90 | 0.000050 | 0.50 | 34.98 | 12.98 | 0.05 |
| 1 | 182 | 2-Yr | 27.60 | 185.00 | 189.13 | | 189.14 | 0.000094 | 0.72 | 38.26 | 14.54 | 0.07 |
| 1 | 182 | 5-Yr | 63.00 | 185.00 | 189.72 | | 189.75 | 0.000263 | 1.36 | 48.41 | 19.90 | 0.13 |
| 1 | 182 | 10-Yr | 115.10 | 185.00 | 191.30 | | 191.34 | 0.000220 | 1.60 | 86.99 | 28.23 | 0.13 |
| 1 | 182 | 25-Yr | 176.60 | 185.00 | 191.61 | | 191.68 | 0.000414 | 2.29 | 95.81 | 29.70 | 0.17 |
| 1 | 182 | 50-Yr | 218.30 | 185.00 | 191.78 | | 191.88 | 0.000562 | 2.72 | 100.87 | 30.53 | 0.20 |
| 1 | 182 | 100-Yr | 261.10 | 185.00 | 191.94 | | 192.08 | 0.000715 | 3.13 | 106.07 | 31.36 | 0.23 |
| 1 | 161 | 1-Yr | 17.60 | 185.00 | 188.89 | | 188.89 | 0.000051 | 0.51 | 34.78 | 12.88 | 0.05 |
| 1 | 161 | 2-Yr | 27.60 | 185.00 | 189.13 | | 189.14 | 0.000096 | 0.73 | 38.01 | 14.42 | 0.08 |
| 1 | 161 | 5-Yr | 63.00 | 185.00 | 189.71 | | 189.74 | 0.000268 | 1.37 | 48.08 | 20.26 | 0.13 |
| 1 | 161 | 10-Yr | 115.10 | 185.00 | 191.30 | | 191.34 | 0.000219 | 1.59 | 89.02 | 29.59 | 0.12 |
| 1 | 161 | 25-Yr | 176.60 | 185.00 | 191.60 | | 191.67 | 0.000410 | 2.27 | 98.14 | 30.93 | 0.17 |
| 1 | 161 | 50-Yr | 218.30 | 185.00 | 191.77 | | 191.87 | 0.000556 | 2.70 | 103.32 | 31.66 | 0.20 |

HEC-RAS Plan: Proposed River: Unnamed_Trib Reach: 1 (Continued)

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|-------|-----------|---------|---------|-----------|-----------|-----------|-----------|------------|----------|-----------|-----------|--------------|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 161 | 100-Yr | 261.10 | 185.00 | 191.93 | | 192.07 | 0.000708 | 3.10 | 108.63 | 32.41 | 0.23 |
| | | | | | | | | | | | | |
| 1 | 147 | 1-Yr | 17.60 | 187.90 | 188.62 | 188.62 | 188.87 | 0.023772 | 3.96 | 4.44 | 9.27 | 1.01 |
| 1 | 147 | 2-Yr | 27.60 | 187.90 | 188.81 | 188.81 | 189.11 | 0.022247 | 4.36 | 6.34 | 10.90 | 1.01 |
| 1 | 147 | 5-Yr | 63.00 | 187.90 | 189.26 | 189.26 | 189.69 | 0.017048 | 5.27 | 12.69 | 19.02 | 0.95 |
| 1 | 147 | 10-Yr | 115.10 | 187.90 | 191.26 | | 191.33 | 0.000735 | 2.33 | 71.31 | 33.16 | 0.24 |
| 1 | 147 | 25-Yr | 176.60 | 187.90 | 191.54 | | 191.66 | 0.001234 | 3.21 | 80.55 | 34.12 | 0.32 |
| 1 | 147 | 50-Yr | 218.30 | 187.90 | 191.68 | | 191.85 | 0.001594 | 3.76 | 85.56 | 34.63 | 0.36 |
| 1 | 147 | 100-Yr | 261.10 | 187.90 | 191.83 | | 192.04 | 0.001942 | 4.26 | 90.66 | 35.15 | 0.40 |
| | | | | | | | | | | | | |
| 1 | 130 | 1-Yr | 17.60 | 187.40 | 188.13 | 188.13 | 188.38 | 0.023620 | 3.99 | 4.41 | 9.06 | 1.01 |
| 1 | 130 | 2-Yr | 27.60 | 187.40 | 188.32 | 188.32 | 188.62 | 0.022284 | 4.40 | 6.27 | 10.62 | 1.01 |
| 1 | 130 | 5-Yr | 63.00 | 187.40 | 188.79 | 188.78 | 189.21 | 0.019299 | 5.17 | 12.19 | 14.52 | 0.99 |
| 1 | 130 | 10-Yr | 115.10 | 187.40 | 191.27 | | 191.31 | 0.000389 | 1.83 | 88.36 | 37.02 | 0.18 |
| 1 | 130 | 25-Yr | 176.60 | 187.40 | 191.55 | | 191.63 | 0.000672 | 2.53 | 98.94 | 38.03 | 0.24 |
| 1 | 130 | 50-Yr | 218.30 | 187.40 | 191.70 | | 191.81 | 0.000877 | 2.98 | 104.74 | 38.57 | 0.27 |
| 1 | 130 | 100-Yr | 261.10 | 187.40 | 191.86 | | 192.00 | 0.001079 | 3.39 | 110.66 | 39.12 | 0.30 |
| | | | | | | | | | | | | |
| 1 | 119 | 1-Yr | 17.60 | 184.80 | 187.73 | | 187.74 | 0.000176 | 0.79 | 22.32 | 11.19 | 0.10 |
| 1 | 119 | 2-Yr | 27.60 | 184.80 | 187.95 | | 187.97 | 0.000325 | 1.11 | 24.91 | 11.86 | 0.13 |
| 1 | 119 | 5-Yr | 63.00 | 184.80 | 189.04 | | 189.07 | 0.000526 | 1.53 | 41.25 | 23.92 | 0.18 |
| 1 | 119 | 10-Yr | 115.10 | 184.80 | 191.28 | | 191.30 | 0.000139 | 1.24 | 118.18 | 39.70 | 0.10 |
| 1 | 119 | 25-Yr | 176.60 | 184.80 | 191.57 | | 191.62 | 0.000257 | 1.76 | 129.93 | 40.91 | 0.14 |
| 1 | 119 | 50-Yr | 218.30 | 184.80 | 191.73 | | 191.79 | 0.000346 | 2.09 | 136.49 | 41.56 | 0.16 |
| 1 | 119 | 100-Yr | 261.10 | 184.80 | 191.89 | | 191.97 | 0.000438 | 2.40 | 143.19 | 42.21 | 0.19 |
| | | | | | | | | | | | | |
| 1 | 85 | 1-Yr | 17.60 | 184.80 | 187.73 | | 187.73 | 0.000110 | 0.67 | 26.46 | 12.45 | 0.08 |
| 1 | 85 | 2-Yr | 27.60 | 184.80 | 187.95 | | 187.96 | 0.000204 | 0.94 | 29.28 | 12.90 | 0.11 |
| 1 | 85 | 5-Yr | 63.00 | 184.80 | 189.03 | | 189.06 | 0.000278 | 1.42 | 49.98 | 26.54 | 0.14 |
| 1 | 85 | 10-Yr | 115.10 | 184.80 | 191.28 | | 191.30 | 0.000116 | 1.29 | 125.94 | 38.24 | 0.10 |
| 1 | 85 | 25-Yr | 176.60 | 184.80 | 191.56 | | 191.61 | 0.000223 | 1.85 | 137.06 | 39.40 | 0.13 |
| 1 | 85 | 50-Yr | 218.30 | 184.80 | 191.72 | | 191.78 | 0.000306 | 2.21 | 143.22 | 40.03 | 0.16 |
| 1 | 85 | 100-Yr | 261.10 | 184.80 | 191.87 | | 191.96 | 0.000394 | 2.55 | 149.49 | 40.66 | 0.18 |
| | | | | | | | | | | | | |
| 1 | 52 | 1-Yr | 17.60 | 186.80 | 187.48 | 187.48 | 187.70 | 0.024378 | 3.77 | 4.67 | 10.75 | 1.01 |
| 1 | 52 | 2-Yr | 27.60 | 186.80 | 187.65 | 187.65 | 187.92 | 0.022612 | 4.13 | 6.69 | 12.72 | 1.00 |
| 1 | 52 | 5-Yr | 63.00 | 186.80 | 188.98 | 188.05 | 189.04 | 0.001145 | 2.08 | 38.67 | 30.04 | 0.28 |
| 1 | 52 | 10-Yr | 115.10 | 186.80 | 191.27 | 188.48 | 191.29 | 0.000174 | 1.41 | 115.56 | 37.12 | 0.12 |
| 1 | 52 | 25-Yr | 176.60 | 186.80 | 191.55 | 188.80 | 191.60 | 0.000321 | 2.00 | 126.07 | 37.99 | 0.17 |
| 1 | 52 | 50-Yr | 218.30 | 186.80 | 191.70 | 188.99 | 191.77 | 0.000433 | 2.38 | 131.80 | 38.45 | 0.20 |
| 1 | 52 | 100-Yr | 261.10 | 186.80 | 191.85 | 189.17 | 191.94 | 0.000549 | 2.74 | 137.61 | 38.92 | 0.22 |

STORM DRAIN COMPUTATIONS:

**STANTEC
6110 Frost Place
Laurel, Maryland 20707**

FOR:
Broad Branch

| | | | |
|-------------------|--------------|-----------|------------------|
| STORM INTERVAL: | <u>10</u> | COMPUTED | EI |
| MANNING'S N: | <u>0.013</u> | DATE | <u>4/18/2013</u> |
| TIME BASIS (MIN): | <u>10</u> | STUDY NO. | |
| | | FILE NO. | |
| | | JOB NO. | <u>110577</u> |

STORM DRAIN COMPUTATIONS:

**STANTEC
6110 Frost Place
Laurel, Maryland 20707**

FOR:
Broad Branch

| | | | |
|-------------------|--------------|-----------|------------------|
| STORM INTERVAL: | <u>15</u> | COMPUTED | EI |
| MANNING'S N: | <u>0.013</u> | DATE | <u>4/18/2013</u> |
| TIME BASIS (MIN): | <u>10</u> | STUDY NO. | |
| | | FILE NO. | |
| | | JOB NO. | <u>110577</u> |

STORM DRAIN COMPUTATIONS:

**STANTEC
6110 Frost Place
Laurel, Maryland 20707**

FOR:
Broad Branch

| | | | |
|-------------------|--------------|-----------|------------------|
| STORM INTERVAL: | <u>25</u> | COMPUTED | EI |
| MANNING'S N: | <u>0.013</u> | DATE | <u>4/18/2013</u> |
| TIME BASIS (MIN): | <u>10</u> | STUDY NO. | |
| | | FILE NO. | |
| | | JOB NO. | <u>110577</u> |

STORM DRAIN COMPUTATIONS:

**STANTEC
6110 Frost Place
Laurel, Maryland 20707**

FOR:
Broad Branch

| | | | |
|-------------------|--------------|-----------|------------------|
| STORM INTERVAL: | <u>50</u> | COMPUTED | EI |
| MANNING'S N: | <u>0.013</u> | DATE | <u>4/18/2013</u> |
| TIME BASIS (MIN): | <u>10</u> | STUDY NO. | |
| | | FILE NO. | |
| | | JOB NO. | <u>110577</u> |

STORM DRAIN COMPUTATIONS:

**STANTEC
6110 Frost Place
Laurel, Maryland 20707**

FOR:
Broad Branch

| | | | |
|-------------------|--------------|-----------|------------------|
| STORM INTERVAL: | <u>100</u> | COMPUTED | EI |
| MANNING'S N: | <u>0.013</u> | DATE | <u>4/18/2013</u> |
| TIME BASIS (MIN): | <u>10</u> | STUDY NO. | |
| | | FILE NO. | |
| | | JOB NO. | <u>110577</u> |

INLET CAPACITY CALCULATIONS:

Broad Branch, Inlet Capacity 10- and 100-Year

DESIGNED: EI
 CHECKED: KMD

DATE: 4/16/2013
 DATE: 5/15/2013

SUMP INLETS (USING ORIFICE EQUATION):

ORIFICE EQUATION:

$$Q = 0.6A(2gh)^{0.5}$$

$$h \text{ (50% Blocked)} = [Q/(4.81*(A/2))]^{2/3}$$

A = 60% OF TOTAL AREA (ASSUME GRATE COVERS 40% OF OPENING)

$$\text{YARD INLET: } A = 0.6(2.5' \times 2.5') = 3.75 \text{ sf}$$

$$\text{E INLET: } A=0.6(4.0' \times 4.0')= 9.60 \text{ sf}$$

h = PONDING ELEVATION (feet)

SUMP INLETS (USING WEIR EQUATION):

C = 3

L(e) = 60 % OF TOTAL LENGTH (ASSUME GRATE COVERS 40% OF OPENING)

$$\text{YARD INLET: } L(e) = 0.6(4 \times 2.5') = 6 \text{ feet}$$

$$\text{E INLET: } L(e) = 0.6(4 \times 4.0') = 9.6 \text{ feet}$$

h = PONDING ELEVATION (feet)

WEIR EQUATION:

$$Q = (cLh)^{(3/2)}$$

$$h \text{ (50% blocked)} = (Q/(3.1*(L/2)))^{(2/3)}$$

| | | | | | | ORIFICE EQUATION | | WEIR EQUATION | | PONDING ELEVATION | | |
|-------|----------|----------|-------------|------------|--------------|------------------|-------|---------------|-------|-------------------|------------|-------------|
| STR # | STR TYPE | A (feet) | L(e) (feet) | Q10* (cfs) | Q100** (cfs) | h10 | h100 | h10 | h100 | TOP OF STR | 10 YR WSEL | 100-YR WSEL |
| IN2 | Yard | 3.75 | 6.00 | 15.5 | 21.9 | 2.954 | 5.897 | 1.406 | 1.770 | 226.80 | 229.75 | 232.70 |
| IN6 | Yard | 3.75 | 6.00 | 15.5 | 21.9 | 2.954 | 5.897 | 1.406 | 1.770 | 224.00 | 226.95 | 229.90 |
| IN3 | Yard | 3.75 | 6.00 | 4.9 | 6.9 | 0.295 | 0.585 | 0.652 | 0.820 | 219.40 | 220.05 | 220.22 |
| IN7 | Yard | 3.75 | 6.00 | 4.9 | 6.9 | 0.295 | 0.585 | 0.652 | 0.820 | 218.50 | 219.15 | 219.32 |
| IN8 | Yard | 3.75 | 6.00 | 3.3 | 4.7 | 0.134 | 0.272 | 0.501 | 0.634 | 217.00 | 217.50 | 217.63 |
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*FROM STORM DRAIN COMPUTATIONS FOR THE 10 YR STORM

**FROM STORM DRAIN COMPUTATIONS FOR THE 100 YR STORM

INLET CAPACITY CALCULATIONS:

Broad Branch, Inlet Capacity 15-Year

DESIGNED: EI
CHECKED: KMD

DATE: 4/16/2013

SUMP INLETS (USING ORIFICE EQUATION):

A = 60% OF TOTAL AREA (ASSUME GRATE COVERS 40% OF OPENING)

$$\text{YARD INLET: } A = 0.6(2.5' \times 2.5') = 3.75 \text{ sf}$$

$$E \text{ INLET: } A = 0.6(4.0' \times 4.0') =$$

h = PONDING ELEVATION (feet)

ORIFICE EQUATION:

$$Q = 0.6A(2gh)^{0.5}$$

$$h \text{ (50% Blocked)} = [Q/(4.81*(A/2))]^{1/2}$$

SUMP INLETS (USING WEIR EQUATION):

C = 3

L(e) = 60 % OF TOTAL LENGTH (ASSUME GRATE COVERS 40% OF OPENING)

$$\text{YARD INLET: } L(e) = 0.6(4 \times 2.5') = 6 \text{ feet}$$

$$L(e) = 0.6(4 \times 4.0') =$$

h = PONDING ELEVATION (feet)

WEIR EQUATION:

$$Q \equiv (cLh)^{(3/2)}$$

$$h \text{ (50% blocked)} = (Q/(3.1*(L/2)))^{(2/3)}$$

*FROM STORM DRAIN COMPUTATIONS FOR THE 15 YR STORM

INLET CAPACITY CALCULATIONS:

Broad Branch, Inlet Capacity 25- and 50-Year

DESIGNED: EI
CHECKED: KMDDATE: 4/16/2013
DATE: 5/15/2013**SUMP INLETS (USING ORIFICE EQUATION):**

ORIFICE EQUATION:

$$Q = 0.6A(2gh)^{0.5}$$

$$h \text{ (50% Blocked)} = [Q/(4.81*(A/2))]^{1/2}$$

A = 60% OF TOTAL AREA (ASSUME GRATE COVERS 40% OF OPENING)

$$\text{YARD INLET: } A = 0.6(2.5' \times 2.5') = 3.75 \text{ sf}$$

$$\text{E INLET: } A=0.6(4.0' \times 4.0')= 9.60 \text{ sf}$$

h = PONDING ELEVATION (feet)

SUMP INLETS (USING WEIR EQUATION):

C = 3

L(e) = 60 % OF TOTAL LENGTH (ASSUME GRATE COVERS 40% OF OPENING)

$$\text{YARD INLET: } L(e) = 0.6(4 \times 2.5') = 6 \text{ feet}$$

$$\text{E INLET: } L(e) = 0.6(4 \times 4.0') = 9.6 \text{ feet}$$

h = PONDING ELEVATION (feet)

| | | | | | | ORIFICE EQUATION | | WEIR EQUATION | | PONDING ELEVATION | | |
|-------|----------|----------|-------------|------|-------|------------------|-------|---------------|-------|-------------------|------------|------------|
| STR # | STR TYPE | A (feet) | L(e) (feet) | Q25* | Q50** | h25 | h50 | h25 | h50 | TOP OF STR | 25 YR WSEL | 50-YR WSEL |
| IN2 | Yard | 3.75 | 6.00 | 18.0 | 20.0 | 3.983 | 4.918 | 1.553 | 1.666 | 226.80 | 230.78 | 231.72 |
| IN6 | Yard | 3.75 | 6.00 | 18.0 | 20.0 | 3.983 | 4.918 | 1.553 | 1.666 | 224.00 | 227.98 | 228.92 |
| IN3 | Yard | 3.75 | 6.00 | 5.7 | 6.3 | 0.399 | 0.488 | 0.722 | 0.771 | 219.40 | 220.12 | 220.17 |
| IN7 | Yard | 3.75 | 6.00 | 5.7 | 6.3 | 0.399 | 0.488 | 0.722 | 0.771 | 218.50 | 219.22 | 219.27 |
| IN8 | Yard | 3.75 | 6.00 | 3.9 | 4.3 | 0.187 | 0.227 | 0.560 | 0.598 | 217.00 | 217.56 | 217.60 |
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*FROM STORM DRAIN COMPUTATIONS FOR THE 25 YR STORM

**FROM STORM DRAIN COMPUTATIONS FOR THE 50 YR STORM



Appendix 5 – Water Quality Calculations

Water Quality Volume (0.3" & 0.5" Runoff Depth)

| SWR Facility Number | Drainage Area # | Total Contributing Drainage Area (ft ²) | Impervious % (Rooftop & Sidewalks) | Impervious % (Pavement) | R (Rooftop & Sidewalks) | R (Pavement) | I _a (Rooftop & Sidewalks) | I _a (Pavement) | WQv (ft ³) | V _w Provided (ft ³) |
|---------------------|-----------------|---|------------------------------------|-------------------------|-------------------------|--------------|--------------------------------------|---------------------------|------------------------|--|
| 1 | 3B1 | 164,516 | 12 | 10 | 0.30 | 0.50 | 19,067 | 17,126 | 1190 | 1219 |
| 2 | 3B2 | 51,747 | 16 | 5 | 0.30 | 0.50 | 8,305 | 2,561 | 314 | 314 |
| 3 | OFF1 | 67,974 | 43 | 7 | 0.30 | 0.50 | 29,066 | 4,921 | 932 | 414 |
| | | | | | | | | | | 2436 1947 |

| SWR Facility Number | Drainage Area # | Surface Area Provided (ft ²) | Ponding Depth (ft) | Volume of Voids (ft ³) | Volume Provided (ft ³) |
|---------------------|-----------------|--|--------------------|------------------------------------|------------------------------------|
| 1 | 3B1 | 2438 | 0.50 | 0.00 | 1219 |
| 2 | 3B2 | 629 | 0.50 | 0.00 | 314 |
| 3 | OFF1 | 829 | 0.50 | 0.00 | 414 |
| | | | | | 1947 |